

HELMINTHOLOGICAL ABSTRACTS

incorporating
BIBLIOGRAPHY OF HELMINTHOLOGY
For the Year 1944.



IMPERIAL BUREAU OF AGRICULTURAL PARASITOLOGY
(HELMINTHOLOGY)

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Vol. XIII, Part 4.

167—Acta Medica Orientalia.

- a. WITENBERG, G., 1944.—“What is the cause of the parasitic laryngo-pharyngitis in the Near East (‘Halzoun’).” 3 (6), 191-192.

(167a) That “Halzoun” is caused by *Fasciola hepatica* is considered doubtful. The most common agent is the leech, *Limnatis nilotica*. A case from Tiberias is attributed to *Clinostomum complanatum*, normally a parasite of herons, pelicans and other fish-eating birds. This parasite has once previously been reported in man, viz., by Yamashita (1938) in Japan.

R.T.L.

168—Acta Medica Scandinavica.

- a. TÖTTERMAN, G., 1944.—“Anemia hyperchromica diphyllbothrica.” 118 (4/5), 402-409.
b. TÖTTERMAN, G., 1944.—“On the occurrence of pernicious tape-worm anemia in *Diphyllbothrium* carriers.” 118 (4/5), 410-416.
c. TÖTTERMAN, G., 1944.—“Furthermore on the question of the pathogenesis of pernicious tape-worm anemia. A preliminary report.” 118 (4/5), 422-429.

(168a) Tötterman describes light hyperchromic anaemia associated with *Diphyllbothrium* infestation in 24 patients. Expulsion of the worm led to permanent improvement in the blood picture, but only in a single case was liver treatment effective though some cases showed some improvement. Hypersensitivity seems to be a factor in the development of anaemia. P.A.C.

(168b) Faecal surveys show that about 14% of the soldiers of the Finnish army are carriers of *Diphyllbothrium*, while civilians in the district of Helsingfors showed a percentage of over 50. Some of the infestations were associated with anaemia. A higher proportion of patients develop this anaemia in times when food is scarce. P.A.C.

(168c) Following the suggestion that patients carrying *Diphyllbothrium* may become hypersensitive to the cestode protein and develop anaemia, Tötterman investigated the effect of parenteral administration of alcohol extracts of whole worm. Two patients who had suffered from cestode anaemia showed a decline in the blood picture which disappeared when the injections ceased. Of the controls, some showed a temporary decline but recovered even though injections continued. P.A.C.

169—Acta Tropica. Basel.

- a. KREIS, H. A., 1944.—“Die Rolle der parasitischen Würmer in den Tropen.” 1, 231-262.

(169a) Kreis gives a general account of helminths which may affect man in the tropics with special reference to treatment and control methods. A.E.F.

170—Agricultura Tecnica.

- a. ARIAS MARAMBIO, J., 1944.—“Contribución al estudio de los metazoos parásitos del perro.” 4 (1), 59-71.
b. WHITEHOUSE, W. E., 1944.—“Peach rootstocks resistant to root knot nematode.” 4 (2), 145-150.
c. MARTÍNEZ CAMPOS, C., 1944.—“La fenotiacina en el caballo de tiro.” 4 (2), 151-169.

(170a) Arias Marambio gives an account of the metazoan parasites of dogs in Chile. He met 10 helminth species. *Dipylidium caninum* occurred in all but 2 of the 64 dogs examined: one dog contained 600 specimens. *Ancylostoma caninum* occurred in 26 while *Toxocara canis* and *Toxascaris leonina* each occurred in about a quarter of the dogs examined. There were present three species of *Taenia* in a few animals and a single infestation with *Echinococcus*.

One animal was positive for *Trichinella spiralis*. The degree of infestation could not be correlated with the age of the host except in the case of *T. canis* which was more frequent in young animals. P.A.C.

(170b) Whitehouse reviews work done in the United States of America during the past twenty-five years on peach rootstocks resistant to the root-knot nematode. M.T.F.

171—Agricultural Journal. Department of Agriculture, Fiji.

- a. HALL, H. T. B., 1944.—“The treatment of worms in poultry.” 15 (4), 104–107.

(171a) Hall considers in popular language some of the more important helminths that may attack fowls in Fiji. He confines himself to *Ascaridia galli*, *Heterakis gallinae*, *Syngamus trachea*, *Choanotaenia infundibulum* and species of *Raillietina* and *Davainea*. Symptoms, methods of penetration into the host, and treatment are discussed. P.A.C.

172—American Fur Breeder.

- a. GASSNER, F. X., 1944.—“Parasitism and its effects on fur animals.” 16 (10), 18–23; 17 (1), 20–22; (2), 32–38.

(172a) Gassner reviews our knowledge of protozoan and metazoan parasites which may attack fur-bearing animals. Among the helminths, the life-history and general methods of control are noted, particularly in the case of ascarids, hookworm, lungworms, *Capillaria plica* and cestodes. There are no new facts in this article. P.A.C.

173—American Journal of Clinical Pathology.

- a. TOMLINSON, W. J. & GROCOTT, R. G., 1944.—“A simple method of staining malaria, protozoa and other parasites in paraffin sections.” 14 (6), 316–326.

(173a) By using in turn solutions of specified strengths of phloxine, toluidine blue, orange G-colophony rosin-acetone-alcohol, and transferring to acetone between each stain, the authors claim to have devised a simple, reliable and inexpensive technique for staining protozoal parasites in paraffin sections of tissue. They also illustrate a section, stained, of the microfilariæ of *Onchocerca volvulus* in tissue. R.T.L.

174—American Journal of Digestive Diseases and Nutrition.

- a. FRANK, L. L., 1944.—“Hypoglycemic reaction with convulsions in ascariasis (case report).” 11 (6), 195–197.

175—American Journal of Diseases of Children.

- a. MILLER, J. F. & EINHORN, N. H., 1944.—“Oxyuriasis: a clinical survey of 200 consecutive cases of infection with *Enterobius vermicularis* in children.” 68 (6), 376–381.

(175a) As a result of studying 200 children infected with *Enterobius vermicularis* Miller & Einhorn have excluded from the symptomatology of oxyuriasis anaemia, malnutrition of any marked degree, convulsions and all allergic manifestations. In brief, they have confirmed the following: (i) local symptoms: pruritus ani and vaginal irritation and secondary infections, mostly due to scratching. (ii) Symptoms secondary to local discomfort: wakefulness at night and enuresis. (iii) “Nervous” symptoms, secondary to disturbed sleep: anorexia, irritability, thumb sucking, etc. (iv) Gastro-intestinal symptoms, probably due to irritation by *Enterobius* worms: abdominal pain, appendicopathia, nausea and vomiting and diarrhoea. (v) Pathologic changes in the blood: eosinophilia. Treatment with gentian violet in enteric-coated capsules, with quassia followed by soapsuds enemas and with tetrachlorethylene was tried. The gentian violet appeared to be the best method. Tetrachlorethylene as used was of no value. M.R.Y.

176—American Journal of Tropical Medicine.

- a. PALMER, E. D., 1944.—“A consideration of certain problems presented by a case of strongyloidiasis.” 24 (4), 249–254.
b. KING, B. G., 1944.—“Early filariasis diagnosis and clinical findings: a report of 268 cases in American troops.” 24 (5), 285–298.
c. WARTMAN, W. B., 1944.—“Lesions of the lymphatic system in early filariasis.” 24 (5), 299–313.
d. OLIVER-GONZÁLEZ, J. & BERCOVITZ, Z. T., 1944.—“Precipitin reactions with antigen prepared from microfilariæ of *Wuchereria bancrofti*. (Preliminary report.)” 24 (5), 315–316.

(176a) A fatal case of strongyloidiasis complicating disseminated tuberculosis is reported. The etiology of the parasite in relation to a large, hard tumour removed from the bowel by laparotomy 9 years previously is discussed. It is suggested that the development of the fulminating tuberculosis may have been caused by a recent migration of *Strongyloides* larvae through the lung where there was an old inactive pulmonary lesion. Autopsy showed that gentian violet had successfully eliminated the *Strongyloides* infection. R.T.L.

(176b) The observed incubation period of filariasis acquired by 268 American troops in three Pacific islands varied from 8 to 16 months. Intradermal reaction to *Dirofilaria immitis* antigen was positive in 90.8%. There was a characteristic lymphangitis of the extremities or genitalia and an adenopathy of the epitrochlear gland. R.T.L.

(176c) Biopsies were made on 17 white men who after 4 months service in the Pacific Islands showed clinical manifestations of filariasis, including epididymitis, acute transient lymphangitis and lymphadenopathy and with positive intradermal tests but without microfilariae in the peripheral blood. Adult filarial worms were recovered in 5 cases. Bacteriologically the material was negative. The tissue reactions in the lymph glands excised showed granulomatous inflammation, tissue eosinophilia and marked hyperplasia of the reticulo-endothelial system. The lymph vessels had reticulo-endothelial hyperplasia, lymph thrombi and inflammation of varying degree with or without thrombosis. Evidently, from these cases, symptoms of filariasis may occur within 3 months after exposure to infection. R.T.L.

(176d) Using dried and pulverized microfilariae of *Wuchereria bancrofti* as test antigen, the serum of 2 out of 26 patients gave a positive precipitin reaction. These cases had no clinical symptoms but there were microfilariae in the blood. There was a positive reaction also in 3 out of 14 patients with clinical symptoms but without circulating microfilariae. Ten controls and dried pulverized leucocytes gave negative reactions. R.T.L.

177—American Midland Naturalist.

- a. MIZELLE, J. D. & DONAHUE, M. A., 1944.—“Studies on monogenetic trematodes. XI. Dactylogyridae from Algonquin Park fishes.” 31 (3), 600–624.
- b. ERICKSON, A. B., 1944.—“Parasites of beavers, with a note on *Paramphistomum castori* Kofoed and Park, 1937 a synonym of *Stichorchis subtriquetrus*.” 31 (3), 625–630.
- c. ERICKSON, A. B., 1944.—“Helminths of Minnesota Canidae in relation to food habits, and a host list and key to the species reported from North America.” 32 (2), 358–372.

(177a) Mizelle & Donahue describe 9 new dactylogyrids from fresh-water fishes from Ontario. They reject the genus *Neodactylogyrus* Price on the grounds that the second (ventral) haptor bar distinguishing this genus from *Dactylogyrus* Dies. is differentially developed and is not always visible in preserved material. *D. cornutus*, *D. bulbosus* and *D. perlus* are redescribed, together with *D. banghami* n.sp., *D. bullosus* n.sp. and *D. pollex* n.sp., all from the gills of *Notropis cornutus*. *Actinocleidus oculatus* is redescribed from the gills of *Lepomis gibbosus*, which also harboured *A. gibbosus* n.sp., *A. incus* n.sp., *A. recurvatus* n.sp., *A. scapularis* n.sp. and *A. sigmoides* n.sp. On the same fish were found *Urocleidus procax* n.sp., *U. dispar* and *U. ferox*; the latter is redescribed and found to include *U. mucronatus* (which falls as its synonym). *U. adspetus* is redescribed from *Perca flavescens*, also an unnamed species which has similar anchors, but on account of the copulatory complex is referred to the genus *Cleidodiscus*. *C. banghami* is noted on *Micropterus dolomieu*; and measurements on several *C. pricei* from *Ameiurus melas* and *A. nebulosus* show that the mean values are much smaller than those of the southern forms from Reelfoot Lake, on the same host—in contradistinction to previous findings that northern forms of dactylogyrid species tend to be the larger. N.G.S.

(177b) In a re-examination of the type and new material of *Paramphistomum castori* from American beavers, Erickson finds that pharyngeal sacs are present—a character of *Stichorchinae* and not of *Paramphistomatinae*—also the presence of highly branched testes, and vitellaria extending to the posterior end of the body, support the conclusion that this material is conspecific with the European *Stichorchis subtriquetrus* (Rud.), to which *P. castori* falls as synonym.

It is found in over 78% of Minnesota beavers, where, in contrast to Orlov's findings in U.S.S.R. [see Helm. Abs., Vol. X, No. 394] it causes no ill effects. 70% of the beavers had concurrent infections with the stomach nematode, *Travassosius americanus* (88% total infection). Notes are given on other less common helminths and on arthropod parasites of this host. N.G.S.

(177c) Erickson has examined for parasites specimens of *Canis nubilus*, *C. latrans*, *Urocyon cinereoargenteus* and *Vulpes fulva*, and gives a host list and key to the species occurring in North America. New records for the district and sometimes for the host are *Alaria mustelae*, *Multiceps packii*, *Multiceps* sp., *Taenia hydatigena*, *T. krabbei*, *T. pisiformis*, *T. rileyi*, *Ancylostoma caninum* and *Filaroides osleri* from *C. latrans*; *Multiceps packii*, *Taenia hydatigena*, *T. pisiformis*, *Diectophyme renale*, *Filaroides osleri*, *Physaloptera* sp. and *Uncinaria stenocephala* from *Canis lupus*; *Alaria canis*, *Multiceps serialis*, *Taenia pisiformis*, *Capillaria aerophila*, *Physaloptera rara*, *Strongyle* sp., *Toxascaris leonina*, *Toxocara canis*, *Trichostrongylus* sp. and *Uncinaria stenocephala* from *Vulpes fulva*; *Alaria canis*, *Multiceps packii*, *Taenia pisiformis* and *Physaloptera rara* from *Urocyon cinereoargenteus*. A few of the specific diagnoses are a little doubtful. P.A.C.

178—Anais da Academia Brasileira de Ciencias.

- a. CORDERO, E. H., 1944.—“Dos nuevas especies de tremátodos del género *Glythelmins* de los batracios del Uruguay.” 16 (1), 1-8.

(178a) Cordera describes fully and figures *Glythelmins festina* n.sp. from the gall bladder of *Bufo arenarum*, and *G. sera* n.sp. from the small intestine of *Chthonerpeton indistinctum*. Both were found at Carrasco, Montevideo. A.E.F.

179—Annales de la Société Belge de Médecine Tropicale.

- a. RODHAIN, J. & GILLAIN, J., 1944.—“Un deuxième cas d'onchocercose nodulaire chez le buffle du cap *Syncerus caffer* dans le Haut-Ituri.” 24 (1/2), 43-53.
 b. SCHWETZ, J. & DARTEVELLE, E., 1944.—“Le problème des mollusques vecteurs de la bilharziose au lac Albert.” 24 (1/2), 58-68.
 c. SCHWETZ, J. & DARTEVELLE, E., 1944.—“Répartition géographique des Planorbidae (Planorbinae et Bulininae) au Congo belge, d'après les collections malacologiques du Musée de Tervuren, 1943.” 24 (3), 147-166.

(179a) Rodhain & Gillain describe the morphology of an *Onchocerca* from nodules removed from the buffalo, *Syncerus caffer*, and identify it with *O. gibsoni*. The nodules, which were situated exclusively in the vicinity of the umbilical scar, are also described. The question of the host relationship of the various species of *Onchocerca* in mammals and the possibility that *O. volvulus* may have originated in some non-human host, are discussed. The authors hold to the opinion that *O. volvulus* is biologically a specific parasite of man. J.J.C.B.

(179b) Schwetz & Darteville report on the molluscs found on the shores of Lake Albert and in the adjoining streams, with some emphasis on the possible planorbid carrier of *Schistosoma mansoni*. The commonest Planorbis is *P. choanomphalus*, with *P. tanganykanus* and *P. stanleyi* less common, and *P. adowensis* absent from the lake but present in the streams. B.G.P.

(179c) Having discussed in general the question of the specific relationships between the schistosomes of man and their molluscan vectors, and in particular, the problem as it appears in the Belgian Congo, the authors suggest a scheme for its further elucidation in that territory which embodies 5 lines of procedure. Two of these are dealt with in this paper, namely (i) the adoption of a simple classification and nomenclature for the Limnaeidae, Bulinidae and Planorbidae and (ii) the study of their distribution throughout the Congo territory. The paper is illustrated by three maps. J.J.C.B.

180—Annals of Applied Biology.

- a. PETHERBRIDGE, F. R. & JONES, F. G. W., 1944.—“Beet eelworm (*Heterodera schachtii* Schm.) in East Anglia, 1934-1943.” 31 (4), 320-332.
 b. ELLENBY, C., 1944.—“Influence of earthworms on larval emergence in the potato-root eelworm, *Heterodera rostochiensis* Wollenweber.” 31 (4), 332-339.

(180a) Petherbridge & Jones make observations on the host range of the sugar-beet eelworm and of a strain of *Heterodera* which they have observed on cruciferous plants. They find that a small proportion of the sugar-beets reaching the factories carry cysts: 19 out of 144 beet loading sites were infected and also 10 sewage farms out of 23 examined. The results of a survey for beet eelworm in the fen district of the Isle of Ely are given and methods of spread are detailed. Recommendations are made for the control of the eelworm and the Sugar-beet Eelworm Order is explained. M.T.F.

(180b) Ellenby added varying numbers of earthworms (mostly *Allolobophora longa* Ude) to pots of soil infected with the potato root eelworm, and 3 months later removed a number of eelworm cysts from the soil, kept them dry for 4 months, and then tested them singly with potato root excretion to find out how the larvae would hatch. He found that the mean number of larvae hatching from the experimental cysts was greater than from the controls and that the response to the hatching stimulus was more rapid. He then examined the rate and degree of hatching of larvae from cysts removed from worm-casts, and obtained confirmation of the former results. Excluding empty cysts, 90% of the experimental cysts produced larvae as compared with 72% of the controls. This difference was significant, as was also the difference between the number of larvae produced per cyst in experimental and control cysts, the former being the greater. The cysts were afterwards dissected and it was found that 34.5% of the larvae had hatched from the cysts obtained from worm-casts and 14% from the controls. M.T.F.

181—Annals of Internal Medicine.

- a. SLOWEY, J. F., 1944.—“A case of transient successive pulmonary infiltration (Loeffler's syndrome) associated with trichiniasis.” 21 (1), 130-135.

182—Annals and Magazine of Natural History.

- a. BAYLIS, H. A., 1944.—“Three new Acanthocephala from marine fishes of Australasia.” Ser. II, 11 (79), 462-472.
- b. PRUDHOE, S., 1944.—“Two new pronoccephalid trematodes from Australia.” Ser. II, 11 (79), 481-486.
- c. BAYLIS, H. A., 1944.—“Two new species of the nematode genus *Heterakis*.” Ser. II, 11 (81), 621-630.

(182a) Baylis describes three new acanthocephalan worms. *Acanthocephalus hastae* n.sp., from the intestine and caeca of *Pomadasys hasta*, *Sparus berda* and *Trachurus declivis* in Queensland, can be recognized by the number of proboscis hooks and by their size. *Rhadinorhynchus peltorhamphi* n.sp. from *Peltorhamphus novae-zelandiae* in Otago can be assigned to the genus *Rhadinorhynchus*, *sensu lato*, though it is scarcely typical of any of the present sub-genera: it can be recognized by the number of cement glands and by the size and disposition of the proboscis hooks. *Micracanthocephalus hemirhamphi* n.sp. from the stomach of *Hemirhamphus intermedius* in Otago, can be distinguished by the dorsal position of the male genital opening, the number and size of the proboscis hooks, the number of the cement glands, and by the possession in the female of a blunt finger-like appendage on the tail immediately behind the genital aperture. P.A.C.

(182b) Prudhoe describes two trematodes from *Eretmochelys imbricata* from the Torres Strait: *Pleurogonius truncatus* n.sp. is nearest to *P. trigonocephalus* Rud., differing chiefly in the slender and relatively shorter cirrus sac, and the eggs having a filament at each pole. *Glyphicephalus* Looss and *Barisomum* Linton are accepted as synonyms of *Pleurogonius* Looss, but *Myosaccus* Gilbert is regarded provisionally as distinct on account of the absence of collar-lobes. A key is given to the 14 species of *Pleurogonius*. *B. candidulum* (Linton) and *P. pomacanthi* (MacCallum) are thought to be synonyms of *P. erubescens* (Linton). *Pyelosomum parvum* n.sp. is much smaller than the other three species of the genus, but is also distinguished by other characters. N.G.S.

(182c) Baylis describes *Heterakis crypturi* n.sp. and *H. multidentata* n.sp. from *Crypturus variegatus* in British Guiana. Both species resemble those often assigned to the genus *Pseud-aspododera* as they possess cuticular “cordons” associated with the interlabial spaces, but they

have equal or sub-equal spicules. *H. crypturi* has a pair of small caudal papillae which may be the equivalent of the "phasmids" of some authors. *H. multidentata* has two pairs of sessile papillae as well as the usual twelve pairs. P.A.C.

183—Annals of Tropical Medicine and Parasitology.

- a. UNSWORTH, K., 1944.—"Observations on the life-cycle of a species of *Diphyllbothrium* found parasitizing trout in Great Britain." 38 (3/4), 213-219.

(183a) Unsworth has completed experimentally the life-cycle of a species of *Diphyllbothrium*, found originally in trout in South Wales. The copepods *Cyclops strenuus* and *Diaptomus gracilis* are efficient first intermediate hosts, while the plerocercoid will develop satisfactorily in the stickleback *Gasterosteus aculeatus* and the pike. He suggests that the heavy infections found in the food fish in the reservoir may have been due to repeated infections from sticklebacks carrying the parasite. The pseudo-adult tendency of the plerocercoids, as manifested by segmentation and development of the genitalia, is probably an abnormal event, due to prolonged period of time in the fish host. The adult recovered from experimentally infected puppies is not identified but it is doubtful if it can be *D. latum*. P.A.C.

184—Archives of Dermatology and Syphilology.

- a. GOLDMAN, L., 1944.—"American onchocerciasis." 50 (6), 385-393.

(184a) This is a résumé of information on American onchocerciasis for the guidance of dermatologists. R.T.L.

185—Archivos Uruguayos de Medicina, Cirugía y Especialidades.

- a. GRAÑA, A. & OEHNINGER, C., 1944.—"Constitución química y propiedades biológicas de la membrana hidática." 24 (3), 231-236. [English summary p. 235.]
 b. GRAÑA, A., 1944.—"Biological treatment of hydatidosis. Test of the 'triple response to the antigenic introduction'." 24 (5), 473-475. [Also in Spanish pp. 471-473.]
 c. TALICE, R. V., 1944.—"Estudios sobre la triquinosis. III. Cuando debe el médico pensar en la triquinosis?" 25 (3), 237-243. [English summary p. 243.]
 d. GRAÑA, A., 1944.—"Investigaciones biológicas en el quiste hidático de hígado abierto en vías biliares. Acción de la terapéutica biológica." 25 (5), 559-565.
 e. PRAT, D., 1944.—"Síndrome doloroso consecutivo a una hidatidosis esplénica. Epiploitis postoperatoria." 25 (5), 579-594.

(185a) Graña & Oehninger have made an analysis of hydatid cuticle using the method described by Campbell in 1942 [see Helm. Abs., Vol. XI, No. 364b]. They obtained an insoluble protein, giving both protein and carbohydrate reactions, which is not dissolved by either pepsin or trypsin but is stained by Best's carmine. It is probably related to hyaloidin. When introduced into rabbits it evokes an intense eosinophilia. P.A.C.

(185b) Graña recommends the intradermal injection of 2 c.c. hydatid fluid daily for 5 days, for the diagnosis of hydatidosis. The triple response is then as follows: (i) a local and general eosinophilia and (ii) a positive complement fixation may both be expected to develop within 24, 48 or 96 hours of the first injection, while (most constant and specific), from the 5th to the 10th day after the last injection, (iii) agglutination of sheep red cells is very marked. In the latter respect hydatidosis sera behave normally before injection (2- to 8-fold dilutions agglutinate) whereas later they agglutinate at dilutions between 32- and 2000-fold. [The English text lacks the last few lines and fails to make sense.] B.G.P.

(185c) The atypical symptoms of trichinosis which is endemic in Uruguay are summarized. R.T.L.

186—Auk.

- a. FARNER, D. S. & MORGAN, B. B., 1944.—"Occurrence and distribution of the trematode, *Collyrichum faba* (Bremser) in birds." 61 (3), 421-426.

(186a) Farner & Morgan publish a catalogue of the hosts of *Collyrichum faba* with notes on the geographical distribution which is curiously limited to 3 regions—Central Europe, eastern United States and north-central United States. The host list contains 26 species of birds, involving 13 families. The presence of the parasite in *Molothrus ater* is reported for the first time. P.A.C.

187—Australian Veterinary Journal.

- a. WHITTEN, L. K. & LUKEY, E. J., 1944.—“*Coenurus cerebralis* in New Zealand sheep. With a note on the occurrence of a tri-radiate scolex in this parasite.” 20 (5), 305–306.

(187a) Whitten & Lukey confirm the presence of *Coenurus cerebralis* as a parasite of sheep in New Zealand. Some of the scolices were tri-radiate. P.A.C.

188—Bimonthly Bulletin. North Dakota Agricultural Experiment Station.

- a. GOLDSBY, A. I. & EVELETH, D. F., 1944.—“A preliminary note on the geographical distribution of gastro-intestinal parasites of sheep in North Dakota and adjacent areas.” 7 (2), 35–36.

(188a) [For a fuller account of this work see Helm. Abs., Vol. XIV, No. 59c.]

189—Biochemical Journal.

- a. LASER, H., 1944.—“The oxidative metabolism of *Ascaris suis*.” 38 (4), 333–338.

(189a) Laser found the oxygen uptake of whole *Ascaris suis* to be 80 μ l./g. wet wt./hr., increasing with rising oxygen tension or after periods of anaerobiosis. Though succinic dehydrogenase was present, the accumulation of oxalacetic acid reduced its activity and this together with the low concentration of cytochrome led to the low rate of oxidation. The R.Q. was 1.1 to 1.2 in air and 0.5 to 0.6 in oxygen. The Q_{O_2} of the muscle pulp, 1.3, was not affected by cyanide or azide. The amounts of catalase in the worms was low and the accumulation of hydrogen peroxide, which killed the worms at high oxygen tensions, was demonstrated. It is concluded that *A. suis* shows a perfect adaption to the low oxygen tension of its normal environment. W.P.R.

190—Biológico.

- a. BITTENCOURT, P. V. C., 1944.—“Considerações sobre a presença do nematoide *Tylenchulus semipenetrans* Cobb, em raízes de citrus.” 10 (2), 47.

(190a) Bittencourt has examined the roots of various kinds of citrus for the presence of the citrus root nematode, *Tylenchulus semi-penetrans* Cobb, with particular reference to the occurrence of citrus sickness [“Tristeza dos Citrus”] in Brazil. He gives a list of citrus species and/or varieties examined, indicating the district from which they were obtained and whether they were on their own roots or had been worked on stock of another kind, on all of which the female nematodes were found. It is concluded that *T. semi-penetrans* is not the primary cause of “citrus sickness”. T.G.

191—Boletín del Instituto de Clínica Quirúrgica. Universidad de Buenos Aires.

- a. NIÑO, F. L., 1944.—“Contribución al tratamiento quimioterápico de la teniasis por *Taenia saginata*.” 20 (168), 813–830.
 b. RIVAS, C. I., GÓBICH, E. & MANTILLA, L. R., 1944.—“Estadística de la hidatidosis en el Instituto de Clínica Quirúrgica.” 20 (168), 845–855.
 c. RIVAS, C. I., GÓBICH, E. & MANTILLA, L. R., 1944.—“Consideraciones sobre la estadística de la hidatidosis en el Instituto de Clínica Quirúrgica.” 20 (168), 856–857.
 d. RIVAS, C. I., 1944.—“Consideraciones sobre el tratamiento de los quistes hidatídicos calcificados del hígado.” 20 (168), 858–863.

(191a) Niño has treated a series of cases of *Taenia saginata* infection with “Acranil” Bayer (containing an acradine derivative). The dosage was: children up to 4 years of age, 0.2 gramme; children 5 to 8, 0.4 gramme; children over 8 and adults, 0.6 gramme. If necessary the dose may be repeated after an interval of from 15 to 30 days. Of 41 cases, 34 were cured after a single dose, 4 were cured after repeated dosage, and 3 were not cured. It is considered that “Acranil” is the ideal substance for the treatment of *T. saginata* infection. A.E.F.

192—Boletín de la Oficina Sanitaria Panamericana.

- a. RUIZ R., F., 1944.—“Datos para la exploración clínica del oncocercoso.” 23 (12), 1081–1089. [English summary pp. 1088–1089.]

(192a) Onchocerciasis is endemic in Guatemala and Mexico : in the latter country it is found in the States of Chiapas (the most important endemic area) and Oaxaca. Ruiz gives in some detail the symptoms of the disease and describes the technique for diagnosing it. If patients are negative at the first examination, at least 2 or 3 further tests should be made at one or two-monthly intervals. A.E.F.

193—Bollettino della Società Italiana di Medicina e Igiene Tropicale (Sezione Eritrea).

- a. FERRO-LUZZI, G., 1944.—“ Il problema dell'anchilostomiasi in Eritrea.” 4 (2), 369-375. [English summary p. 375.]

(193a) Ferro-Luzzi has found 3 foci of *Ancylostoma duodenale* infection in Eritrea, where previously the disease was practically unknown. It is believed that the parasite has been introduced within the last ten years, and that conditions such as those brought about by wars in Ethiopia and Eritrea have favoured its spread. The adoption of control measures is urged. A.E.F.

194—Brasil-Medico.

- a. CANÇADO, J. R., 1944.—“ Tratamento das teníases pela instilação duodenal de extrato de fêto macho.” 58 (27/29), 268-270. [English summary pp. 269-270.]

(194a) Cançado successfully treats cases of *Taenia saginata* by direct administration of extract of male fern into the duodenum. Complete worms are passed within a few hours. P.A.C.

195—British Journal of Surgery.

- a. BINGHAM, J. A. W. & McDONALD, JR., S., 1944.—“ A filarial nodule simulating a cyst of the external semilunar cartilage.” 32 (126), 326-327.

196—British Journal of Tuberculosis and Diseases of the Chest.

- a. BARRETT, N. R. & THOMAS, D., 1944.—“ Pulmonary hydatid disease.” 38 (2/3), 39-95.

197—Bulletin. Idaho Agricultural Experiment Station.

- a. RAEDER, J. M., 1944.—“ Diseases of potatoes in Idaho.” No. 254, 39 pp.

(197a) Over 1,155 different species of plants are now known to be susceptible to attack by *Heterodera marioni*. It is very prevalent in the south of U.S.A. and has been reported along the Canadian border. Although grain crops are not immune they are highly resistant. The dandelion is very susceptible. The worms are killed experimentally, by thorough desiccation by moderate heat (118°F. for 10 minutes), extreme cold (0°F. for 2 hours) or by starvation for 2 to 3 years. Knowledge of these facts may be useful for cropping practices. It is advised that to control the infection in potatoes the shipment of infested seed, the use of implements, garbage, raw materials for stock, and irrigation water from infected fields should be avoided. The stem nematode in potatoes involves only a few farms in the State of Idaho. R.T.L.

198—Bulletin de l'Institut d'Hygiène du Maroc.

- a. GORSSE, P. & ACCART, R., 1944.—“ Essai sur le traitement de la bilharziose vésicale.” New Series, 3 (Année 1943), 5-57.
b. GAUD, J., SALM, G. & FASSI, F., 1944.—“ Parasitisme intestinal chez les écoliers de Fès.” New Series, 3 (Année 1943), 87-113.

(198a) Gorsse & Accart discuss the treatment of schistosomiasis in a general way, considering the signs of the disease which may be used to assess the efficiency of the treatment—clinical signs, presence of eggs in urine, humoral changes and endoscopic pictures must all be used together to give a balanced judgement. The drugs considered are tartar emetic, foudadin and anthiomaline. They review the work of many previous workers and add some of their own observations. P.A.C.

(198b) Gaud et al. have examined a section of the population of Morocco, including a large number of school children, for intestinal parasites. Five helminth species were demonstrated, 80% of the examinees being positive for one or more species. *Ascaris lumbricoides* and *Trichuris trichiura* were the most common, *Enterobius vermicularis*, *Taenia saginata* and *Hymenolepis nana* being much rarer. Infestation is much more frequent among children under 10 years of age than in any other group: the Arab children form a reservoir of infection of all the intestinal parasites. *H. nana*, though rare, was found as frequently in adults as in children. A large section of this article is devoted to the intestinal protozoa. P.A.C.

199—Bulletin of the Johns Hopkins Hospital.

- a. WHITEHALL, R. & MILLER, M. H., 1944.—“Infestation of the genito-urinary tract by *Strongyloides stercoralis*: a case report.” 75 (3), 169-174.

200—Bulletin du Muséum d'Histoire Naturelle. Paris.

- a. NOUVEL, J., 1944.—“Un cas mortel d'ascaridiose du puma (*Puma concolor* [L.]).” 2e Série, 16 (5), 306-307.
 b. DESPORTES, C., 1944.—“Étude de quelques caractères morphologiques de *Toxascaris leonina* (Linstow 1902) provenant d'un puma.” 2e Série, 16 (5), 308-315.
 c. DOLLFUS, R. P., 1944.—“Sur les cestodes de *Puma concolor* (L.).” 2e Série, 16 (5), 316-320.

(200a) Nouvel describes a fatal case of *Toxascaris leonina* infection in a puma (*Puma concolor*) at the Vincennes Zoo. About 350 specimens of the parasite were recovered at post-mortem. A.E.F.

(200b) Desportes describes in detail the morphology of specimens of *Toxascaris leonina* recovered from *Puma concolor* [see preceding abstract]. He reviews the literature on nematodes from this host and lists the 8 species previously recorded. A.E.F.

(200c) Dollfus reviews the literature on cestodes recorded from *Puma concolor*, and adds *Taenia ovis*, which was recovered from a puma which died in the Vincennes Zoo [see preceding abstracts]. A.E.F.

201—Bulletin de la Société de Pathologie Exotique.

- a. POIRIER, M., 1944.—“Considérations sur l'éosinophilie dans les maladies parasitaires.” 37 (1/2), 59-60.
 b. DESCHIENS, R., 1944.—“L'action anthelminthique des colorants triphénylméthaniques.” 37 (3/4), 111-125.
 c. DESCHIENS, R., 1944.—“Action comparée de la tanaïse et de l'armoise sur les formes larvaires de nématodes parasites et saprophytes.” 37 (5/6), 149-153.
 d. POIRIER, M., 1944.—“Considérations sur un cas de taeniasis avec tableau clinique de pré-cirrhose.” 37 (7/8), 236-238.
 e. LAVIER, G. & STEFANOPOULO, G., 1944.—“L'intradermo-réaction et la réaction de fixation du complément dans la distomatose humaine à *Fasciola hepatica*.” 37 (9/10), 302-310.
 f. DESCHIENS, R., 1944.—“Sur les conditions expérimentales d'évolution et d'éclosion des oeufs d'oxyurides.” 37 (9/10), 310-314.
 g. SAUTET, J. & MARNEFFE, H., 1944.—“Infestation naturelle de *Planorbis adonensis* Bourguignat, 1879, par *Schistosoma mansoni* au Soudan Français.” 37 (9/10), 320-321.
 h. MARTIN, R., LE ROY, SUREAU, B., BABOUOT, P. & BOURCART, N., 1944.—“Un nouveau cas de distomatose hépatique; diagnostic précoce par le tubage duodénal.” 37 (11/12), 359-363.

(201a) In helminth infections eosinophilia may be of local origin. In a case with a schistosome tumour of the bladder the eosinophilia was 9% and in one with iliac *Onchocerca* nodules the eosinophilia was 26%. A number of *Ascaris* caused an eosinophilia of 12%. A count of 66% was associated with the presence of numerous larvae of *Strongyloides* in the faeces. A 25% eosinophilia was probably due to a hydatid in the liver. R.T.L.

(201b) The triamines, basic fuchsin and methyl violet, have a greater anthelmintic action than the diamines (malachite green, methyl green, Brilliant green) which are less potent but have a selective action against certain species. These triphenylmethane stains notably affect the genera *Hymenolepis*, *Dipylidium*, *Enterobius*, *Ascaris* and *Toxocara*. Basic fuchsin has been used successfully by Deschiens in 20 cases of oxyuriasis. R.T.L.

(201c) Deschiens has tested the nematocidal properties of decoctions of tansy (*Tanacetum vulgare* L.) and mugwort (*Artemisia vulgaris* L.), both of which have an old medicinal and veterinary reputation as being efficacious against worm infestations. He tested them against the larvae of *Protostrongylus* sp., *Dictyocaulus* sp., *Bunostomum* sp., *Heterodera marioni* and a free-living nematode *Rhabditis macrocerca*. The decoction of tansy was made from flowers and stems at the rate of 3 grammes to 300 c.c. of water, and autoclaved; that from mugwort at the rate of 10 grammes to 200 c.c. of water. Worms were placed in the decoctions and as a control others were placed in tapwater. In the decoctions of both tansy and mugwort the larvae of *Protostrongylus*, *Dictyocaulus* and *Bunostomum* were killed after 2 days whereas larvae of *H. marioni* were living after 6 days and *Rhabditis macrocerca* found the conditions so congenial that they increased in numbers. T.G.

(201e) Lavier & Stefanopoulou find that with specific antigen the intradermal and complement fixation reactions are both very useful and accurate in diagnosing *Fasciola hepatica* infestations. There is evidence to show that they can be used to diagnose early infestations before eggs are apparent in the stool. P.A.C.

(201f) Wishing to test the viability of oxyurid eggs exposed to triphenylmethane derivatives, Deschiens used the proportion of eggs hatching *in vitro* as a criterion. Eggs of *Syphacia obvelata* and *Aspiculuris tetraptera*, concentrated by salt-flotation from mouse faeces, were incubated in water 48 hours at 25°C. and then 5 or 6 hours at 37–40°C., after which from 10 to 100% of eggs hatch. Eggs of *Enterobius vermicularis*, obtained from a gravid female, are incubated without water but in a moist chamber for 5 to 19 days at 20° to 30°, then in water at 37° 25% to 75% of the eggs hatch in a few minutes. Basic fuchsin and gentian violet at 1 : 3,000 stain the eggs in 24 hours or more but kill only a proportion of them. B.G.P.

(201g) *Planorbis adowensis* collected near the villages of Baguineda in French Sudan were frequently infected with furcocercariae. The natives in those regions were heavily infected with intestinal schistosomiasis. That the furcocercariae were those of *S. mansoni* was demonstrated experimentally by the successful infection of white mice. R.T.L.

(201h) Martin et al. report a case of *Fasciola hepatica* in a child with a 46% eosinophilia, eggs being found by duodenal sound. Treatment with emetine was successful, since the flukes were considered to be young, having only just commenced laying eggs. Symptoms were vague and confusing. B.G.P.

202—Canadian Entomologist.

- a. BAKER, A. D., 1944.—“Additional Canadian host records for *Heterodera schachtii* Schm. and for *H. marioni* (Cornu) Goodey.” 76 (7), 152.

(202a) Baker found considerable numbers of cysts of *Heterodera schachtii* on the roots of *Rumex crispus* L. near Sarnia, Ontario. This is a new host record for Canada. The common burdock, *Arctium minus* (Hill) Bernh. was frequently found infected with the root-knot nematode *H. marioni*. M.T.F.

203—Caribbean Medical Journal.

- a. CLEARKIN, P. A., 1944.—“A note on the laboratory diagnosis of filariasis, resulting from infection by *Wuchereria bancrofti*.” 6 (5), 317–321.

204—Ceylon Journal of Science. Section B. Zoology.

- a. WEEREKON, A. C. J., 1944.—“A new avian cestode, *Cotugnia platycerci* from Stanley's Rosella Parakeet, *Platycercus icterotis*.” 22 (2), 155–159.
- b. BURT, D. R. R., 1944.—“A new avian cestode, *Krimi chrysocolaptis* gen. et sp. nov. from Layard's woodpecker *Chrysocolaptes guttastratus stricklandi* (Layard 1854).” 22 (2), 161–164.
- c. BURT, D. R. R., 1944.—“New avian species of *Hymenolepis* from Ceylon.” 22 (2), 165–172.
- d. CRUSZ, H., 1944.—“Contributions to the helminthology of Ceylon. I. On *Multiceps serialis*.” 22 (2), 173–181.

(204a) Weerekoon describes *Cotugnia platycerci* n.sp. from the intestine of *Platycercus icterotis* in the Zoological Gardens in Ceylon. As the bird had been originally acquired in

Australia, it cannot be certain if the species is autochthonous to Ceylon. It can be distinguished by the number of rostellar hooks, the arrangement of the testes and extent of the cirrus sac and by the shape of the receptaculum. P.A.C.

(204b) Burt describes *Krimi chrysocolaptis* n.g., n.sp., a dilepid cestode from *Chrysocolaptes guttacristatus stricklandi* in Ceylon. It can be recognized by the presence of a persistent reticulate uterus associated with irregularly alternating genital pores and a single crown of hooks. The arrangement of the excretory vessels and the passage of the genital ducts between the longitudinal excretory vessels are other useful characters. P.A.C.

(204c) Burt describes 3 new species of *Hymenolepis* from birds in Ceylon. *H. uragahaensis* n.sp. from *Harpactes fasciatus fasciatus* is distinguished by the size of the cirrus sac and genital atrium and the shape of the testes which are very distinct. *H. ellisoni* n.sp. from *Acridothores tristis melanosternus* can be recognized by the number and shape of the rostellar hooks and the extent of the cirrus sac. *H. septemsororum* n.sp., a parasite of *Turdoides griseus striatus*, is similar in many respects to *H. zosteropsis* but can be distinguished by its size and its habit of early maturity. The size of the testes, receptaculum and eggs are characteristic as is also the arrangement of the musculature. P.A.C.

(204d) A statistical investigation of the size of hooks of *Multiceps serialis* from the heart (a new location) and intermuscular connective tissue of *Lepus nigricollis singhala* in Ceylon shows a considerable amount of individual variation. Cruzs shows that Meggitt's formula can be used for the identification of different species. This is the first record of this species from Ceylon. P.A.C.

205—Chinese Medical Journal. Chengtu.

- a. MAO, C. P. & CHEN, T. C., 1944.—“A brief study of human intestinal parasites in Kouloushan, Chungking.” 62A (3), 92–94.
- b. HSÜ, S. H., 1944.—“Ocular sparganosis.” 62A (3), 107–108.
- c. YU, N. G. & MAO, C. P., 1944.—“Preliminary report of *Microfilaria malayi* infection in Chungking.” 62A (3), 114–120.

(205a) Examining the faeces of 374 children by direct smear Mao & Chen found various protozoal cysts and eggs of *Ascaris* (in 304), *Trichuris* (74), hookworm (22), and *Enterobius* (1). Zinc sulphate flotation was also used in 95 of the cases, giving in all cases an increased frequency. The ratio of the latter to the direct smear frequency gives a “concentration coefficient” held to be characteristic of each parasite. B.G.P.

(205b) Hsü reports a case of subconjunctival sparganosis mansonii in man: on pressure the parasite emerged through an opening in the bulbar conjunctiva. B.G.P.

(205c) *Mf. malayi* is recorded from a native of Hupeh who resided in Chungking for 3 years. It has not hitherto been recorded from either of these two places. Sodium antimony tartrate and arsenic compounds were unsuccessfully tried in treatment. Smears taken from a sternal puncture at 2 p.m. were negative, and this is believed to demonstrate that the reticulo-endothelial system does not participate in the phenomenon of periodicity. J.J.C.B.

206—Circular. California Agricultural Experiment Station.

- a. TYLER, J., 1944.—“The root-knot nematode.” No. 330, Revised edit., 30 pp.

(206a) An abstract of the 1933 edition of this circular appeared in Helm. Abs., Vol. II, No. 349a. This revision is substantially the same but there are some alterations in the lists of plants susceptible, and more or less resistant to root-knot. The temperature required to kill the nematode instantly is now given as 140°F., not 130°, and control by the use of the additional chemicals methyl bromide, ethylene dichloride, dichloropropane and propylene dichloride mixture, and phytonomic sodium hypochlorite is considered. M.T.F.

207—Clinical Proceedings. Journal of the Cape Town Post-Graduate Medical Association.

- a. ROSIN, I. R., 1944.—“Chronic bilharzial appendicitis.” 3 (5), 206–219.

208—Comptes Rendus (Doklady) de l'Académie des Sciences de l'URSS.

- a. SMIRNOV, G. G., 1944.—“On the efficiency of cutaneous infection with hookworm larvae.” 42 (1), 46–48.
- b. POTEKINA, V. A., 1944.—“On the decipherment of the biological cycle in *Moniezia benedeni* (Moniez, 1879), tapeworm parasitic of cattle and other domestic animals.” 42 (3), 146–148.
- c. POTEKINA, V. A., 1944.—“Contribution to the study of the development of *Thysaniezia ovilla* (Rivolta, 1878), a tapeworm parasitic of ruminants.” 43 (1), 43–44.
- d. SKRYABIN, K. I., 1944.—“An analysis of the generic components entering into the composition of three trematode families: Opisthorchidae, Dicrocoeliidae, and Echinostomatidae.” 44 (7), 299–301.
- e. SKRYABIN, K. I., 1944.—“On trematodes of the genus *Odhneriella* Skrjabin, 1915, parasitic of sea mammals.” 44 (7), 302–303.

(208a) Thigmotaxis is the most important factor in the penetration of hookworm infective larvae into the skin: thermotaxis has a subordinate rôle. Smirnov finds that the bulk of the larvae penetrate the skin within the first half hour of contact when he uses abdominal skin of freshly killed hamsters. They were able to penetrate the skin even when a large bulk of water was present: evaporation to a thin film was not essential for successful entry. P.A.C.

(208b) Potemkina has implicated *Scheloribates laevigatus* and *Galumna obivius* as intermediate hosts of *Moniezia benedeni*. Development of the infective stage may take as long as 170 days but is shortened to 100 to 120 days when the temperature increases: the cysticeroid grows to a larger size in *G. obivius* than in *S. laevigatus*. The stages of its development are described and figured. P.A.C.

(208c) Potemkina has successfully infected lambs with *Thysaniezia ovilla* using the oribatids *Scheloribates laevigatus* and *S. latipes* as vectors. Experimental infections of these mites show that development to the infective stage takes from 120 to 160 days: the course of development is described. P.A.C.

(208d) Skrjabin examines the specific characters of 6 digenetic trematodes and finds they have generic significance, and thereby creates the following monotypic genera for them: *Tubangorchis* n.g., for *Metorchis caintaensis* Tubangui; *Evranorchis* n.g., for *Opisthorchis ophidiarum* Tubangui & Masiluñgan; *Stromitrema* n.g. (co-authorship attributed to V. G. Evranova) for *Eurytrema koshewnikowi* Skrjabin & Massino; *Skrjabinosomum* n.g. (authorship attributed to Evranova) for *Lyperosomum porrectum* (Braun); *Bashkirovitrema* n.g., for *Echinostoma incrassatum* (Diesing); and *Stephanoprora* Odhner, 1902 (*non sensu* Odhner, 1911) is revived from synonymy with *Mesorchis* Dietz (*sensu* Bashkirova, 1941) to contain only the type species, *S. ornata* Odhner. N.G.S.

(208e) Trematodes recovered from the intestine of *Delphinaptera leucos* by a Soviet expedition to the Arctic are found by Skrjabin to be co-specific with those from the same host, named by Price (1932) *Hadwenius seymouri*, and re-examination of the original material of *Odhneriella rossica* Skrjabin from the walrus' liver has shown that anterior intestinal diverticula are present in this species also, thus invalidating the genus *Hadwenius* Price, which falls as a synonym to *Odhneriella* Skrjabin; the latter is redefined to include these 2 species. N.G.S.

209—Comptes Rendus des Séances de la Société de Biologie. Paris.

- a. COUTELEN, F., 1944.—“Facteurs déterminant le polymorphisme des vésicules du cénure sérial.” 138 (3/4), 104–105.
- b. DESCHIENS, R., 1944.—“Etude d'un test du déterminant des propriétés anthelminthiques des dérivés triphénylméthaniques.” 138 (7/8), 201–202.
- c. DESCHIENS, R. & LAMY, L., 1944.—“Recherches sur les propriétés parasitocides des fuchsines.” 138 (7/8), 203–204.
- d. DESCHIENS, R. & LAMY, L., 1944.—“Sur les propriétés parasitocides des sels de vert malachite.” 138 (11/12), 384–385.
- e. DESCHIENS, R., 1944.—“Sur les propriétés anthelminthiques du vert brillant et du vert éthyle.” 138 (11/12), 386–387.

(209a) Coutelen discusses the various factors which may influence proliferation in *Coenurus serialis*. Apart from any innate tendency towards proliferation, its position within the host and varying pressures from surrounding tissues, which may include limiting obstacles, and the

degree of parasitism, may affect the shape of the coenurus. The fibrous tissue capsule formed by the host may also cause irregular pressure on the parasite. P.A.C.

(209b) Testing 10 triphenylmethane derivatives *in vitro* against *Rhabditis macrocerca* and *Haemonchus contortus* eggs and larvae, and in mice (*per anum*) against oxyurids and Hymenolepis, Deschiens points out that the triamino compounds are more active than the corresponding diamino compounds; sulphonation similarly reduces activity, acid fuchsin being less effective than basic. B.G.P.

(209c) Deschiens & Lamy have tested basic, acid, and para-fuchsin and "fuchsine diamant" (said to be a mixture of fuchsin and para-fuchsin) against several protozoa, nematodes and tapeworms. The effective dose in mice is highly toxic *per anum* in solution, much less so *per os*. B.G.P.

(209d) Deschiens & Lamy recommend either the sulphate or chloride of malachite green against oxyurids; the oxalate and chloro-zincate are too toxic. Of the former the M.L.D. in rabbits is 0.075 gm./Kg. daily for 10 days, or 0.1 gm./Kg. for 6 days, whereas the effective dose against oxyurids in man and rabbit is from 0.002 to 0.0025 gm./Kg. daily for 8 days and repeated twice after weekly rests. It is ineffective at this level against several other helminths. B.G.P.

(209e) Deschiens finds that brilliant green and ethyl green have a similar anthelmintic power, but they are more toxic than basic fuchsin or malachite green. B.G.P.

210—Cornell Veterinarian.

- a. MAYHEW, R. L., 1944.—"Studies on bovine gastro-intestinal parasites IX. The effects of nematode infections during the larval period." 34 (4), 299-307.

(210a) Larvae of gastro-intestinal nematodes appear to have very serious effects on bovine hosts. Weight increases are reduced and severe anaemia and even death may result during the prepatent period. P.A.C.

211—Current Science.

- a. THAPAR, G. S., 1944.—"Role of domestic animals in the spread of helminthic infections in man." 13 (11), 274-276.
b. BHALERAO, G. D., 1944.—"Plant nematodes, a neglected subject in India." 13 (12), 301-302.

(211a) Thapar discusses helminths common to man and animals. He divides them into 3 groups: (i) helminths living as adults both in man and animals, e.g. *Diphyllobothrium latum*; (ii) helminths which occur as adults in man but as larvae in animals, e.g. *Taenia* spp.; and (iii) helminths which occur as adults in animals but as larvae in man, e.g. *Echinococcus*. In order to reduce infection in man the control of helminths in livestock is important. Thapar stresses the importance of co-operative research between medical, veterinary, agricultural and zoological specialists. A.E.F.

(211b) Bhalerao draws timely attention to the neglect of the plant parasitic helminths by research workers in India. So far only *Anguillulina tritici* on wheat and barley, *A. angusta* on rice, and *A. similis* on pineapple, canna, coffee, bamboo, sweet potato, banana and sugar-cane have been reported from India. Brief descriptions are given of these and of 8 other species which owing to their prevalence in tropical countries are probably present in India but have hitherto been overlooked. R.T.L.

212—Día Médico.

- *a. QUIROGA, P., 1944.—"Tratamiento biológico de la hidatidosis, del profesor Calcagno; nuestra contribución." 16, 14-16.
*b. HENRIQUES, J., 1944.—"Oclusión intestinal por Ascaris y divertículo de Meckel." 16, 648-650.
*c. RIVAS, C. I., 1944.—"Las alteraciones torácicas de los quistes hidatídicos del hígado." 16, 862-864.
d. NIÑO, F. L., 1944.—"Papel de los helmintos en las llamadas apendicitis verminosas." 16 (45), 1371-1372.

*Titles so marked throughout this number have not been seen in the original

213—East African Medical Journal.

- a. WRIGHT, F. J. & ROBERTS, J. I., 1944.—“A creeping eruption with intense eosinophilia in a case of infection by *Schistosoma mansoni*.” 21 (9), 282-284.

214—Farmers' Bulletin. U.S. Department of Agriculture.

- a. CLAYTON, E. E., GAINES, J. G., SMITH, T. E., SHAW, K. J. & GRAHAM, T. W., 1944. “Control of flue-cured tobacco root diseases by crop rotation.” No. 1952, 12 pp.

(214a) Root-knot due to *Heterodera marioni* in tobacco can be controlled by 3-year rotations with Spanish peanuts and oats or rye. Crotalaria and runner peanut plants and other soil-building crops must be judiciously used as some of them add too much organic nitrogen for the production of good quality leaf. Winter cover crops of oats or rye usually increase the value of the tobacco crop on infected land in proportion to the quantity of organic matter turned in. They reduce the damage without actually reducing the incidence of the disease. R.T.L.

215—Farming in South Africa.

- a. MÖNNIG, H. O., 1944.—“Worms in sheep, goats and cattle. Different types and their control.” 19 (224), 711-720, 732; (225), 764-774.

(215a) Of the 26 species of helminths parasitic in sheep and goats and the 28 species in cattle in South Africa, 22 occur in sheep, goats and cattle. Four species are present in sheep and goats, but not in cattle, and 6 species are present in cattle and not in sheep or goats. A brief popular account is given of each species and the mode of spread, prevention and treatment. Mönnig states that in South Africa worms cause more losses than all other sheep diseases combined, not only from deaths but also from deterioration in the quantity and quality of the wool, and in the growth, health and procreative qualities of the sheep. R.T.L.

216—Food Packer.

- *a. PINCKARD, J. A., 1944.—“Soil fumigant effective against nematodes.” 25 (1), 43-44.

(216a) [This paper appeared originally in Seed World, 1943, 54, 12-13, 46. For abstract see Helm. Abs., Vol. XII, No. 411a.]

217—Gaceta Veterinaria. Buenos Aires.

- a. GROSSO, A. M., PRIETO, C. & STROBINO, L. E., 1944.—“Dioctophimosis en dos especies de nuestra fauna autóctona.” 6 (27), 2-11.
b. GROSSO, A. M., PRIETO, C. & STROBINO, L. E., 1944.—“Otro caso de dioctofimosis en un lobo rojo.” 6 (28), 66-67.

(217a) Grosso et al. record the presence of *Dioctophyme renale* in the coati, *Nasua solitaria*, and in the red wolf, *Chrysocyon brachyurus*, in Argentina. They describe the pathological changes which had occurred in the hosts as a result of the infestation and discuss the morphology and life-history of the parasite. P.A.C.

218—Gardeners' Chronicle.

- a. HOWARD, A., 1944.—“The control of eelworm.” 116 (3011), 96-97.
b. LEIPER, R. T., 1944.—“Potato eelworm.” 116 (3023), 208.

(218a) Howard cites Timson, Government Agriculturist, in the Rhodesia Herald of 7th July, 1944 as showing that by the use of compost, tobacco and vegetables, despite infestation with eelworm (*Heterodera marioni*), gave good yields. At the Witchwood Demonstration Farm an extremely severe infestation was completely cleared up following an application of compost. Howard assumes that the *Heterodera* infections of potatoes and sugar-beet in Britain would be similarly controlled by 20 to 25 tons of Indore compost per acre. R.T.L.

(218b) In a spirited reply to Howard's “Cause and Cure of the Potato Eelworm” (see preceding abstract) Leiper points out that heavy manuring of crops on eelworm soil increases not only the crop yield, as Howard claims, but also the eelworm population, and also that the

former effect should be even greater were the eelworm first destroyed. He names, for purposes of record, DDM, a substance not yet available commercially, which largely destroys the eelworm and leads to greatly increased yields.

B.G.P.

219—Gastroenterology. Baltimore.

- a. FAUST, E. C., 1944.—“Diseases in the tropical war zones. IV. The diseases of the Middle East, India, Assam and Burma.” 2 (6), 395–411.
- b. FAUST, E. C., 1944.—“Diseases in the tropical war zones. V. The diseases of the Far East, Southwest and South Pacific.” 3 (3), 163–187.

(219a) This section of Faust's survey of diseases in tropical theatres of war deals with southeastern Arabia, Iraq and Iran, Baluchistan, Afghanistan, India, and Burma. Ascariasis is very common, with the highest incidence in Ceylon (81.9%). Hookworm disease is present from the northwestern frontiers of India to Burma; at least 50% of the total population of India is infected. Trichuris is prevalent in hookworm areas: filariasis and dracontiasis occur in most countries in this region. *Taenia solium* and *T. saginata* occur among the poorer classes. Of trematodes, *Fasciolopsis buski*, *Gastrodiscoides hominis* and *Echinostoma sufragaryfex* are found in East India, while *Paragonimus* and *Schistosoma* probably do not occur. Faust includes distribution maps of the more important diseases.

A.E.F.

(219b) This is the final instalment of Faust's survey of disease in tropical theatres of war [for earlier parts see Helm. Abs., Vol. XII, No. 328a; XIII, No. 21a, and preceding abstract], and deals with the Far East and the South and Southwest Pacific. Hookworm disease (*Necator americanus* in tropical, *Ancylostoma duodenale* in subtropical areas) is widespread, as are *Ascaris lumbricoides* (especially in children), *Trichuris* and filariasis. *Strongyloides stercoralis* has a low incidence in China, but is important in Formosa, Indo-China, the Philippines, Malaya, and Dutch East Indies. Hydatid is frequently encountered in North China, Japan, southern Australia, and New Zealand. *Taenia saginata* is widely distributed, while *T. solium* is uncommon. *Fasciolopsis buski*, *Clonorchis sinensis*, echinostome, and *Paragonimus* infections are common in the Far East. There are endemic foci of *Schistosoma japonicum* in Japan, the Philippines, Formosa and Celebes, while in China several million are infected. Trichinosis is practically unknown.

A.E.F.

220—Illinois Medical Journal.

- a. FIROVED, J. W., 1944.—“Filariasis: public health aspects and prognosis.” 86 (2), 97–99.

221—Indian Journal of Veterinary Science and Animal Husbandry.

- a. SARWAR, M. M., 1944.—“Some new records of nematode worms from Indian ruminants.” 14 (1), 60–61.
- b. BHALERAO, G. D., 1944.—“Chemotherapy of helminthic infections of domestic animals.” 14 (2), 125–132.

(221a) A four-month old dairy calf of Hriana breed harboured over 5,000 specimens of the species *Mecistocirrus digitatus*, *Cooperia punctata* and *C. pectinata*. *M. digitatus* is by far the commonest nematode infesting cattle in India and is held responsible for parasitic gastritis in calves. A buffalo calf harboured *C. punctata*, *Paracooperia nodulosa*, *Bunostomum phlebotomum* and a *Capillaria* sp. None of these has been recorded previously from buffaloes. In a sheep were specimens of *Oesophagostomum indicum* originally described from deer. The findings in cattle reported here are from the Bareilly district of the United Provinces of India.

R.T.L.

(221b) Bhalarao summarizes the information which has become available during the past 15 years on the treatment of helminths in common domesticated animals and gives a useful bibliography of 34 titles.

R.T.L.

222—Instituto de Parasitología y Enfermedades Parasitarias. Facultad de Agronomía y Veterinaria. Universidad de Buenos Aires.

- a. GALOFRE, E. J. & ROSA, W. A., 1944.—“Estrongilidios del caballo. Segunda comunicación.” 3 (5), 67–90.

(222a) Galofre & Rosa describe 9 strongyle parasites of horses, bringing the total recognized in the Argentine to 28. They are *Triodontophorus brevicauda*, *Craterostomum mucronatum*, *Trichonema (Cylicocychus) auriculatum*, *T. (C.) elongatum*, *T. (C.) insigne* var. *rosenbuschi*, *T. (Cylicodontophorus) ihlei*, *Poteriostomum imparidentatum*, *P. imparidentatum* vars. *argentinum* and *longum*. P.A.C.

223—Iowa Veterinarian.

- a. HELMING, R. B., 1944.—“Diarrhea in mature cattle.” 15 (3), 8-9, 21.
- b. BENBROOK, E. A., 1944.—“Parasites of sheep.” 15 (4), 5-7, 18-21.

(223a) Among factors which induce diarrhoea in mature cattle, Helming would include stomach worm, *Haemonchus contortus*, for which he recommends the use of phenothiazine. P.A.C.

224—Journal of Agricultural Research.

- a. SHORB, D. A., 1944.—“Factors influencing embryonation and survival of eggs of the stomach worm *Haemonchus contortus*.” 69 (7), 279-287.
- b. OLSEN, O. W., 1944.—“Bionomics of the lymnaeid snail, *Stagnicola bulimoides techella*, the intermediate host of the liver fluke in southern Texas.” 69 (10), 389-403.
- c. DINABURG, A. G., 1944.—“Development and survival under outdoor conditions of eggs and larvae of the common ruminant stomach worm, *Haemonchus contortus*.” 69 (11), 421-433.

(224a) Lack of oxygen, as in sealed jars, destroyed the viability of the eggs of *Haemonchus contortus* in about 4 weeks. No eggs of the parasite reach the infective stage at temperatures below 55°F. or above 98°F. Drying killed eggs rapidly. Few survived in apparently dry faeces. The lowering of the moisture content of faeces raised the death rate of the eggs. R.T.L.

(224c) Regardless of the rainfall, few pre-infective larvae of *Haemonchus contortus*, i.e. those recovered after 3 to 6 days' exposure, and no infective larvae, i.e. those recovered after 13 or more days' exposure, were found when eggs were exposed outdoors for 3 or more days to a mean maximum temperature below 65°F. The amount of rainfall in the week preceding and the 3 days following the exposure of eggs considerably affected the degree of their development. Eggs do not survive for more than 13 to 20 days below 70°F. or 6 to 13 days above 70°F. Temperature rather than rainfall is more reliable in designating unfavourable periods of the year for the development and survival of *Haemonchus* eggs. R.T.L.

225—Journal of the American Medical Association.

- a. DI GIACOMO, M.P. & MAYER, R. A., 1944.—“Schistosomiasis mansonii.” 125 (13), 904.
- b. ALMY, T. P. & HARPER, J. G. M., 1944.—“Banti's syndrome apparently due to infection with *Schistosoma mansonii*.” 126 (11), 703-705.
- c. ANON, 1944.—“Transitory pulmonary infiltrations associated with eosinophilia—Loeffler's syndrome.” 126 (13), 837-838.

(225a) The insidiousness, nature and duration of schistosomiasis due to *S. mansonii* are illustrated by two cases. R.T.L.

(225c) This editorial discusses Loeffler's syndrome (transitory pulmonary infiltrations clearly revealed by skiagram, with general eosinophilia, but a mild clinical course) and regards it as an allergic reaction provokable by various allergens. Among possible causes are mentioned infestation with *Ascaris* and *Fasciola hepatica*, but it is not clear whether, in *Ascaris* cases, the pulmonary infiltration is due to larval migration or allergic reaction. B.G.P.

226—Journal of the American Society of Agronomy.

- a. PINCKARD, J. A. & LEONARD, O. A., 1944.—“Influence of certain soil amendments on the yield of cotton affected by the *Fusarium-Heterodera* complex.” 36 (10), 829-843.

(226a) The authors have studied the effect of stable manure up to 12 tons per acre, and commercial fertilizer up to 1,200 lb. per acre, on the growth and yield of cotton grown for ten years consecutively on Ruston sandy loam soil. Winter legumes were grown and ploughed in each year and the amount of wilt and root-knot on the cotton was noted. Though the stable manure produced the biggest plants and the highest yields, there was no significant relationship

between nematode infestation or wilt infection and soil treatment. On Sarpy fine sandy loam, stable manure, cyanamide, dry sagrains (*Sorghum vulgare*) + ammonium sulphate, spoiled alfalfa hay and cotton stalks were tested. All were placed in the furrows before seeding the cotton, and in addition, stable manure was tested as a surface dressing at rates of 8 and 4 tons per acre. The highest average yield of cotton for three years of these treatments was given on the plots treated with alfalfa hay, and 8 tons of manure in the furrows was nearly as effective. The lowest yields were from the plots receiving cotton stalks and the untreated ones. The total amount of disease was not related to the treatments, but the ability of infected plants to survive and bear fruit was affected. The authors consider that the good results given when stable manure and alfalfa hay are used are due to the improvement in the soil structure caused by the composts, which encourages the production of roots by the cotton; and also to the presence of a slowly available source of food enabling the plants, though infected, to produce good growth and yields.

M.T.F.

227—Journal of Animal Science.

- a. THORP, W. T. S., HENNING, W. L. & SHIGLEY, J. F., 1944.—“The efficiency of the phenothiazine salt mixture and drench for sheep.” 3 (3), 242–249.

(227a) If properly administered, a 1–9 phenothiazine and salt mixture is an efficient and non-toxic anthelmintic for adult sheep, but lambs do not consume enough when it is most needed. This mixture is not expected to control heavy infestations but is to be used as a preventive. Working in Pennsylvania the authors recommend that all sheep in the flock should be treated in late autumn or early winter with phenothiazine drench and again in the spring one or two weeks after lambing. Following this the entire flock is placed on the mixture. When 3 or 4 months old lambs should be drenched with phenothiazine. This should be repeated if the lambs show evidence of parasitism and if the season is wet and warm. All young stock kept over the winter should be drenched in autumn. A chart shows the average bi-weekly red cell count and haemoglobin for ewes and lambs kept on continuous salt mixture for 20 weeks.

R.T.L.

228—Journal of the Department of Agriculture. South Australia.

- a. MITTON, R. L., 1944.—“Internal parasites of sheep: the liver fluke.” 48 (5), 202–206.

(228a) Mitton gives the Australian farmer a useful summary of the main facts regarding the biology of *Fasciola hepatica* in *Limnaea brazieri* and describes the symptoms and postmortem appearances of the acute and the chronic forms of the disease. In Australia the acute disease is usually seen in late summer and autumn while the chronic type appears later in autumn and in winter. The danger of infection is greatest between December and May. During the winter months many of the infected snails die. Mitton points out that carbon tetrachloride can only act as a palliative owing to the tremendous residual infection in the snails and on the pastures. Carbon tetrachloride should be diluted with liquid paraffin (1 to 4). The dosage recommended for sheep and for lambs is 5 c.c. of this mixture administered by drenching gun or funnel. One drench in June is sufficient if the infection is light but if it is heavy the drenching should take place in May and July, or where this is insufficient then at the end of April, in mid-June and late in July. He gives useful advice on drenching and paddock control.

R.T.L.

229—Journal. Éire Department of Agriculture.

- a. CARROLL, J. & McMAHON, E., 1944.—“A summary of research work carried out in Ireland on the potato root eelworm.” 41 (2), 220–228.

(229a) This is a useful summary confined to the author's own contributions to the solution of the problems presented by *Heterodera schachtii* (= *rostochiensis*) in potatoes. It is now known that this infection occurs abundantly in many regions around the coast and in islands off the west coast of Éire, particularly in the light sandy areas, as well as in many widely dispersed inland regions, in small gardens, and in cut-away peat bog in the midlands. Trap cropping, which in earlier experiments gave a very good measure of control in small plots, is now stated to have proved disappointing when tried out on larger areas. It is thought to be due to the failure of the trap crop to hatch out a high proportion of the eggs.

R.T.L.

230—Journal of the Florida Medical Association.

- *a. WILSON, J. F., 1944.—“Treatment of creeping eruption with Fuadin.” 30, 425-426.

231—Journal of Mammalogy.

- a. BUECHNER, H. K., 1944.—“Helminth parasites of the gray fox.” 25 (2), 185-188.

(231a) Buechner records 3 cestode, 6 nematode and one acanthocephalan species from *Urocyon cinereoargenteus* in Texas. *Pachysentis canicola* is recorded from this host for the first time. Some of the helminths had caused significant pathological changes. P.A.C.

232—Journal of Parasitology.

- a. DENTON, J. F., 1944.—“Studies on the life history of *Eurytrema procyonis* Denton, 1942.” 30 (5), 277-286.
 b. CORT, W. W., BRACKETT, S. & OLIVIER, L., 1944.—“Lymnaeid snails as second intermediate hosts of the strigeid trematode, *Cotylurus flabelliformis* (Faust, 1917).” 30 (5), 309-321.
 c. VAN CLEAVE, H. J. & ROSS, E. L., 1944.—“Physiological responses of *Neoechinorhynchus emydis* (Acanthocephala) to various solutions.” 30 (6), 369-372.
 d. HAWKINS, P. A., COLE, C. L. & KLINE, E. E., 1944.—“Studies of sheep parasites. IV. Survival of sheep nematodes on pasture during the fall months.” 30 (6), 373-376.

(232a) The developmental stages of *Eurytrema procyonis* (a microcoeliid from the pancreas of raccoons) are described by Denton, who has reared them in the garden snail *Mesodon thyroideus* from Texas. Ova from mature worms hatched only within the snail and developed into mature mother sporocysts in the haemocoel of the digestive gland in 70 days, as white lobed masses; these produce daughter sporocysts continuously for over a month, which migrate to the respiratory region and are mature in 141 days, when they escape into the mantle cavity and with others form clumps which are ejected on to vegetation. Beyond this the experiments did not go, so that neither the proof of absence of a second intermediate host nor reinfection of the definitive host was accomplished. Unlike *Dicrocoelium dendriticum*, the daughter sporocyst has a complex cellular wall lined with an epithelial layer, and contains a “fixed” number of cercariae of the same age formed by the equal division of the cells of the germ mass, though the morphology of the stumpy-tailed stylet cercaria is similar, and its flame-cell formula $2[(2+2+2)+(2+2+2)]$, is identical. These cercarial characters are thought to be important familial diagnostic criteria. N.G.S.

(232b) The development of the metacercaria of the strigeid *Cotylurus flabelliformis* of ducks has been studied experimentally in the lymnaeid snails of the Douglas Lake region and evidence is presented that the cercariae which develop in the varieties of *L. stagnalis* differ greatly in their second intermediate host relations from those developed in the varieties of *L. emarginata*. They appear to be two different physiological or host varieties. The difference in size of the infections even when exposed to the same degree of infection may perhaps be explained by differences in the size and activity of the different snail species. There was a marked retardation in development of the metacercariae in very heavy infections owing possibly to limited space and food supplies. R.T.L.

(232c) The Acanthocephala depend entirely on the permeability of the body wall for absorption and excretion. Normally the living worm is distinctly flattened and wrinkled. Experiments show that solutions recommended for physiological studies on these worms have extremely adverse effects. Water or hypotonic solutions result in turgidity and both *in vitro* and *in vivo* cause death. R.T.L.

(232d) In Michigan *Haemonchus contortus* larvae on pastures die out in 2 months in the late summer and autumn. For *Oesophagostomum columbianum* and *Chabertia ovina* the survival time is $3\frac{1}{2}$ months, while *Ostertagia circumcincta*, *Trichostrongylus colubriformis*, *Nematodirus* sp. and *Trichuris ovis* larvae are still viable after $4\frac{1}{2}$ months. The breeding stock rather than the pastures are responsible for the perpetuation of infections under Michigan climatic conditions. R.T.L.

233—Journal of the South African Veterinary Medical Association.

- a. QUINLAN, J. B. & STEYN, H. P., 1944.—“Onchocerciasis of the penis in a thoroughbred stallion.” 15 (3), 106–107.

234—Journal of Tropical Medicine and Hygiene.

- a. BANKOFF, G., 1944.—“The surgical treatment of elephantiasis.” 47 (5), 49–53.

235—Journal of the University of Bombay. Section A. Physical Sciences.

- a. SHAH, M. M. & PHALNIKAR, N. L., 1944.—“Synthetical anthelmintics. Part X—Synthesis of lactones analogous to angelica lactones (γ substituted phenyl Δ^b crotono lactones).” 13 (3), 22–26.

236—Journal of Wildlife Management.

- a. ERICKSON, A. B., 1944.—“Helminth infections in relation to population fluctuations in snowshoe hares.” 8 (2), 134–153.

(236a) The population of the snowshoe hare, *Lepus americanus*, seems to follow a 10-year cycle in North America and Erickson has studied the relation of this cycle to helminth infection. Known parasites include 3 trematode, 9 cestode, 14 nematode and one acanthocephalan species, of which one cestode and 5 nematodes seem to be of pathogenic importance. At the beginning of the cycle parasites were not abundant and the population of hares was increasing. A peak in the number of parasites was reached in the middle of the cycle and at the same time the numbers of hares fell suddenly. He discusses seasonal differences in the degree of parasitism, the effect of captivity on disease and the pathological changes that were produced and which were important in reducing the resistance of the host to other factors.

P.A.C.

237—Kentucky Medical Journal.

- a. TURNER, E. L., 1944.—“Amebiasis, other intestinal protozoal infections, helminthous dysentery.” 42 (5), 135–143.

238—Landwirtschaftliches Jahrbuch der Schweiz.

- a. STÖCKLI, A., 1944.—“Die Wirkung von Gesapon auf die freilebenden Bodennematoden.” 58 (5), 496–506. [French summary pp. 505–506.]

(238a) Stöckli added solutions of 1% and 2% Gesapon [the Geigy proprietary containing D.D.T.] to two different garden soils in order to determine any action it might have on the free-living nematodes. So far from causing any reduction in their numbers, it actually gave rise to increased numbers of nematodes and the possible reasons for this effect on the micro-biology of the soil are discussed.

T.G.

239—M.S.C. Veterinarian. Michigan State College.

- a. KLINE, E. E. & HAWKINS, P. A., 1944.—“Parasites common to dog and man.” 4 (4), 174–177.

(239a) Kline & Hawkins mention a number of parasites of man which also occur in the dog. The helminths are *Fasciola hepatica*, *Trogloremia salmincola*, *Paragonimus kellicotti*, *Dipylidium caninum*, *Diphyllobothrium latum*, hydatid, *Ancylostoma caninum*, *A. braziliense*, *Dracunculus medinensis*, *Diocotophyme renale*. In some cases the dog is a reservoir host, in others it involves an essential stage in the development of the parasite. The most important helminth of the dog in relation to man is *Echinococcus granulosus*. Protozoan and arthropod parasites are also considered.

P.A.C.

240—Medical Bulletin. Bombay.

- a. BALIGA, A. V., 1944.—“Filariasis.” 12 (15), 279–281.

241—Medical Journal of Australia.

- a. MAPLESTONE, P. A., 1944.—"Hookworm infestation." [Correspondence.] 31st Year, 1 (17), 379-380.
- b. HUGHES, J. F., 1944.—"Creeping eruptions (larva migrans)." 31st Year, 1 (18), 393-394.
- c. LOWE, T. E. & LANCASTER, H. O., 1944.—"Strongyloidiasis in man: infestation with *Strongyloides stercoralis* (Bavay, 1876)." 31st Year, 1 (20), 429-435.
- d. LOWE, T. E., 1944.—"Eosinophilia in tropical disease: experiences at an Australian general hospital." 31st Year, 1 (21), 453-456.
- e. TURNBULL, H. H., 1944.—"Tropical diseases in returned soldiers." 31st Year, 2 (16), 397-401.
- f. BARNETT, L., 1944.—"Colossal hydatids associated with choleperitoneum." 31st Year, 2 (20), 511-514.

(241a) Tetrachlorethylene has almost completely superseded carbon tetrachloride in the treatment of hookworm on account of its relative safety and the absence of liver damage. Although no deaths from it have yet been recorded, in at least 4 cases its use has resulted in deep narcosis similar to chloroform anaesthesia; it is therefore advisable to keep the patient under observation for some hours after the administration of this drug. R.T.L.

(241b) Two cases of larva migrans are briefly described; one was contracted in New Guinea. Although attempts were made it is not clear from the account given that the larva causing the lesion was actually recovered and identified. Two striking photographs illustrate the paper. R.T.L.

(241c) From reports on a series of patients it is shown that infection with *Strongyloides stercoralis* produced recurrent symptoms in the lungs, alimentary canal, and the blood which may lead to extensive investigation unless the presence of this parasite is suspected. Gentian violet gives symptomatic relief but fails to eradicate the infection which frequently recurs. Unlike hookworm cases those with strongyloidosis do not lose their infections, which are self-maintaining. R.T.L.

(241d) A large number of Australians returning from military service in the tropics provided an opportunity of observing the individual and combined effects of various tropical diseases on the eosinophile picture. The results are discussed under "malaria infection", "helminth infestation" and "unexplained eosinophilia". In malaria the numbers are depressed and after treatment there is an eosinophile rise. There is a general relationship between hookworm and eosinophilia. *Trichuris trichiura* cannot be considered a frequent cause of significant eosinophilia. There was pronounced eosinophilia in all of the 16 cases of *Strongyloides stercoralis*. It is thought that two different factors are concerned in the production of eosinophilia, viz., a non-specific factor in malaria and bacterial infections and a specific factor in helminth infestations. R.T.L.

(241e) Of the actual incidence of helminth infections in returned Australian soldiers this article merely states that "a small group of cases" of *Schistosoma haematobium* occurred and "a number of men have been infected" by hookworm in New Guinea. No case of *Taenia solium* has been noted. R.T.L.

242—Medical Parasitology and Parasitic Diseases.

- a. KAMALOV, N. G., GORDADZE, G. N., POLOVETSKAYA, A. A. & TSUTSUNAVA, T. N., 1944.—[The treatment of hookworm anaemia with iron compounds.] 13 (1), 3-17. [In Russian.]
- b. GORODILOVA, L. I., 1944.—[Epidemiology and control of Hymenolepis infection.] 13 (1), 18-26. [In Russian.]
- c. KEVORKOV, N. P. & SHLEIKHER, E., 1944.—[Immunity to superinfection with Hymenolepis.] 13 (1), 26-30. [In Russian.]
- d. KEVORKOV, N. P. & VAVILOVA, M. P., 1944.—[Intra-intestinal auto-reinfection with Hymenolepis.] 13 (1), 31-34. [In Russian.]
- e. GORDADZE, G. N., KAMALOVA, A. N. & BUGIANISHVILI, S. M., 1944.—[Taenia infections in man in Georgia.] 13 (2), 64-66. [In Russian.]
- f. SKVORTSOV, A. A. & PLOTNIKOV, N. N., 1944.—[*Opisthorchis felineus* cercariae in molluscs in the Tobolsk region.] 13 (3), 50-53. [In Russian.]
- g. PODYAPOLSKAYA, V. P. & ISAICHEVA, A. I., 1944.—[The treatment of Hymenolepis

- infection with fern in combination with other preparations.] 13 (5), 3-6. [In Russian.]
- h. GORYACHEVA, L. K., 1944.—[Comparative efficiency of various treatments in *Hymenolepis* infection.] 13 (5), 7-10. [In Russian.]
 - i. VASILKOVA, Z. G., 1944.—[The control of helminth ova in the waters of the Moskova river.] 13 (5), 11-16. [In Russian.]
 - j. HELLER, E. R., 1944.—[The epidemiology of enterobiasis.] 13 (5), 16-23. [In Russian.]
 - k. LEIKINA, E. S., 1944.—[Specific vaccination of mice against *Trichuris muris*.] 13 (5), 24-32. [In Russian.]
 - l. BELOZEROVA, O. M. & LITUNOVSKAYA, M. N., 1944.—[Faecal examination for helminth ova with sodium nitrate.] 13 (5), 32-36. [In Russian.]
 - m. SHIKHOBALOVA, N. P. & GORODILOVA, L. I., 1944.—[The effect of the ultraviolet part of the sun spectrum on the eggs of *Ascaris*.] 13 (6), 69-71. [In Russian.]
 - n. SHUMEIKO, A. I., 1944.—[A study on the intensity of infestation with the eggs of helminths of the vegetables and fruits in Samarkand.] 13 (6), 77-78. [In Russian.]
 - o. SEMENOVA, N. E., 1944.—[Two cases of grave ascariidosis.] 13 (6), 79. [In Russian.]

(242a) The authors give data collected from 107 out of the numerous cases infected with hookworms which came under their observation. *Ancylostoma duodenale* was found in 3% of these cases, *Necator americanus* in 17.6% and both species in 79.4%. In addition 42.7% were infected with *Ascaris lumbricoides* and 65.4% with *Trichuris trichiura*. The counts of hookworm eggs varied from 2,000 to 85,000 per gramme of faeces. Although anthelmintic treatment alone produced an improvement in the general condition and in the blood of the patients, the process was very slow and the increase in haemoglobin was only 0.2 to 0.6% per day. Dosage with iron compounds, on the other hand, administered both before and after anthelmintic treatment, showed very good results, particularly in the case of severe hookworm anaemia where dosage before treatment produced a marked improvement in the general condition and in the blood. Among the various iron compounds used, *Ferrum reductum* (0.5 to 1.0 c.c. given three times a day) and *Tinctura Ferripomati* (15 to 20 c.c. given three times a day) were found to be the most efficacious. C.R.

(242b) Gorodilova investigating the incidence of *Hymenolepis nana* in a sanatorium and an orphanage discovered that the percentage of children infected during the last few years varied from 16.3 to 58.3%. During her investigation in the sanatorium the author discovered only one new case (2.6%) but from two groups in the orphanage 5 (33.3%) and 8 (61.5%) children were infected respectively. In order to discover the sources of infestation Gorodilova examined the most familiar objects in the children's environment as well as water and food products, chambers, lavatories, and flies and mice which had access to the food store. Out of 186 samples collected only two were found to carry infection; these came from the bedding of the infected children. Only one mouse out of 104 was found infected with *Hymenolepis fraterna*. The author's further investigations proved that the main sources of infection in the orphanage were chambers (61.6% showed *H. nana* and 18.6% *Enterobius vermicularis* eggs) and the lavatories (72.2% showed *H. nana* eggs). In the sanatorium, on the other hand, these objects were free from eggs. She found mechanical cleansing and disinfection with 5% carbolic acid to be very effective for removing eggs of *H. nana*. After these preventive measures were taken only two children out of 55 (3.6%) were found to be infected and their chambers and lavatories were free from eggs. At the same time in the control group where no preventive action had been taken, 9 out of 18 children (50%) were infected and 73.3% of chambers showed eggs. According to the author, man is the only reservoir for this parasite. C.R.

(242c) The authors infected 4 groups of mice with eggs of *Hymenolepis*. The eggs were fed in two doses of 2,500 eggs each and these were administered in various subgroups of mice at intervals of 5, 7, 12, 21, 26 and 40 days. The first group received eggs of *Hymenolepis nana*, the second group *H. fraterna*, the third group *H. nana* in the first dose and *H. fraterna* in the second, and the fourth group *H. fraterna* in the first dose and *H. nana* in the second. From 73 mice used in these experiments only 3 showed positive results from the second infestation, viz., in the third and fourth group after 26 and 12 days respectively. The authors considered that this only happened in mice with their resistance lowered from unknown causes and that superinfection and intra-intestinal auto-infection with *Hymenolepis* is impossible in healthy mice. C.R.

(242d) In order to demonstrate the possibility of intra-intestinal auto-infection, the authors infected 5 groups of rats with eggs of *Hymenolepis nana*. In the first group, rats kept on a normal diet were infected by the direct introduction of eggs (i) into the stomach, (ii) into the duodenum and (iii) by mouth. In this group, only those in sub-groups (i) and (iii) showed cysticercoids on dissection. In the second group, rats kept on a vitamin-free diet were again infected by the direct introduction of eggs (i) into the stomach, (ii) into the duodenum and (iii) into the small intestine. Here 4 out of 11 rats infected in sub-group (i) and 1 out of 3 in sub-group (ii) were found infected. In the third group eggs were introduced into the large intestine, in the fourth into the caecum and in the fifth into the various parts of the small intestine. All these gave negative results. According to the authors, therefore, these experiments showed that eggs of *H. nana* do not develop unless they pass through the stomach and that under normal conditions intra-intestinal auto-infection does not take place. C.R.

(242e) The authors examined 7,575 persons for *Taenia saginata* and found 741 infected. Out of 1,209 persons which were examined for all helminths 858 were infected with *Ascaris lumbricoides*, 763 with *Trichuris trichiura*, 12 with *Hymenolepis nana*, 23 with *Trichostrongylus* sp., 2 with *Strongyloides stercoralis*, and 6 with hookworms. This high percentage of infestation was due, in the authors' opinion, to the very primitive conditions prevailing in south-east Georgia. C.R.

(242f) The authors, examining 299 specimens of *Bithynia leachi* in the Tobolsk region, found 21.4% infected with cercariae of *Opisthorchis felineus*. C.R.

(242g) Podyapolskaya & Isaicheva, examining 1,826 children, found 479 (26.2%) to be infected with *Hymenolepis nana*. The children were treated with male fern in combination with (i) acrichine, (ii) methylene blue and (iii) yatren. The best results were obtained by using yatren after male fern (28.3% efficacy) or a combination of male fern and methylene blue (42.1% efficacy). C.R.

(242h) Goryacheva treating 76 persons for *Hymenolepis* infection discovered that treatment with a single dose of male fern was ineffective. By splitting the dose into three parts at 10 days intervals she obtained 56.2% cures among 78 persons. From 23 persons treated with pumpkin seed she obtained an efficacy of only 8.6%. C.R.

(242i) The author examined 203 samples of water taken from the river Moskva, 154 samples being taken at various distances below the point where the main outlet of a sewage works enters the river and 49 samples above this point. Of the former, 71 (46.4%) and of the latter 15 (30%) were positive. The eggs of the following species were found: *Ascaris lumbricoides*, *Trichuris trichiura*, *Enterobius vermicularis*, *Taenia* sp., *Diphyllobothrium latum* and *Dicrocoelium*. *A. lumbricoides* eggs occurred in 86.6% of the total positive samples and of these 67.6% developed under laboratory conditions. The author concludes that water from this river could serve as a serious source of helminthic infection. C.R.

(242j) Heller, examining the effects of temperature and humidity on the development of eggs of *Enterobius vermicularis*, found that they developed outside the host to infective stage only at a temperature of 22° to 40°C. At the optimum temperature of 34° to 36°C. they reached the infective stage in 4 to 6 hours. They died at a temperature of -15°C. in 40 to 50 minutes. The optimum relative humidity for their development was 90 to 100%. According to the author the viability of disseminated ova depends primarily on temperature and humidity. C.R.

(242k) The author experimenting with white mice used an antigen prepared from *Trichuris muris* and administered it by mouth and subcutaneously. Afterwards the mice were fed with infective eggs of *T. muris*. It was found that mice developed immunity which (i) reduced the intensity of infestation, (ii) shortened the longevity of the parasites in the host, and (iii) shortened the period of egg-laying. C.R.

(242l) The author tested various methods for examining faeces for helminth ova and concluded that the best results were obtained with Kalantaryan's method [see Helm. Abs., Vol. VII, No. 222d] using saturated sodium nitrate. The paper contains data showing the percentage of positive results obtained by each method. C.R.

(242m) In order to determine the effect of the ultraviolet rays of the sun on eggs of *Ascaris lumbricoides*, the authors exposed to the sunlight 4 samples of eggs. The first were left uncovered on moist sand; the second were covered with plain glass; the third with a light yellow filter and the fourth with a dark green filter. The eggs in the first 2 dishes died, while those in the third and fourth dishes 90 to 94% developed up to the infective stage. In a control sample not exposed to the sunlight 96 to 98% of eggs developed to the infective stage. C.R.

(242n) The author examined 210 samples of various fruits and vegetables in Samarkand and on them were found 44 oncospheres of *Taenia* sp., 10 eggs of *Enterobius vermicularis*, 1 egg of *Fasciola hepatica* and 1 egg of *Dicrocoelium dendriticum*. In the paper a table is given showing the names of specimens examined and the number of eggs found on each. C.R.

(242o) Two patients admitted to hospital with suspected acute appendicitis proved on examination to be infected with ascarids. Treatment with santonin effected a cure in both cases. C.R.

243—Medicina Clinica. Barcelona.

- a. GALLART-ESQUERDO, A., 1944.—“Consideraciones sobre el diagnóstico clínico y el tratamiento de la oclusión intestinal por *Ascaris*.” Año II, 3 (3), 247.

244—Medicina Colonial. Madrid.

- *a. DIEZ MELCHOR, F. & APARICIO GARRIDO, J., 1944.—“Valoración de las reacciones biológicas en el diagnóstico de la hidatidosis.” 3 (3), 133-143.

245—Memorias do Instituto Oswaldo Cruz.

- a. FREITAS, J. F. TEIXEIRA DE, 1944.—“Estudos sobre nematóides filarídeos. Genótipo de *Dipetalonema* Diesing, 1861; valor de gêneros *Acanthocheilonema* Cobbold, 1870 e *Breinlia* Yorke & Maplestone, 1926.” 40 (1), 33-46. [English summary pp. 43-44.]
b. PINTO, C., 1944.—“Um ano de combate às doenças parasitárias que atacam os rodoviários da estrada Rio-Bahia, 1942 a 1943.” 40 (3), 209-340. [English summary pp. 335-340.]

(245a) Teixeira de Freitas is of opinion that Cobbold's genus *Acanthocheilonema* must be regarded as synonymous with Diesing's *Dipetalonema* thus supporting the views of Boulenger (1928). *Breinlia* is a valid genus, differing from *Dipetalonema* principally in the morphology of the longer spicule. R.T.L.

(245b) This report on the work of the Parasitic Diseases Service, created to protect workers engaged in the construction of the Rio-Bahia highway, is largely concerned with malaria, but contains also the following sections of helminthological interest. (i) Data are given (pp. 278-290) on the incidence of helminths and protozoa in the towns of Itambacurí and Governador Valadares in the north of Minas Gerais, *Schistosoma mansoni* being common in the former. (ii) C. Pinto & A. Firmato (pp. 291-311) describe a method of controlling schistosomiasis by using sapindaceous plants, the saponin released from which is lethal not only to *Australorbis glabratus* but also to the miracidia and cercariae of *S. mansoni*. The plants used were *Serjania* sp. (stems and roots) and *Sapindus saponaria* (fruits). On a field scale the *Serjania* was macerated at least 24 hours in 20,000 litre tanks discharged twice or more a week into running streams, and in stagnant water floating faggots of plant-stems were tethered at frequent intervals. Fish were also killed. (iii) The hairy armadillo, *Euphractus sexcinctus*, was artificially infested with *S. mansoni*, picked up accidentally *Ascaris lumbricoides* from an experimental pig (which failed to acquire *S. mansoni*), and was found naturally infested with *Ancylostoma caninum* (pp. 311-319) B.G.P.

246—Minnesota Horticulturist.

- a. DOSDALL, L. & LONGLEY, L. E., 1944.—“The leaf nematode disease of chrysanthemum in Minnesota.” 72 (9), 134-135.

(246a) Dosdall & Longley of the University Farm, Minnesota, give an account of the symptoms of disease in chrysanthemums caused by the chrysanthemum leaf nematode [*Aphelenchoides ritzema-bosi*], explaining its mode of spread on the outside of the plant under conditions of abundant moisture. They make recommendations for its control, in adequate spacing of

plants, care in watering, the use of a nicotine-Bordeaux mixture, and the taking of cuttings. Several varieties of the cushion or so-called azaleamum type, which have proved to be moderately resistant, are listed, as are a number of varieties which have been found to be very susceptible.

T.G.

247—New York State Journal of Medicine.

- a. MELENEY, H. E., 1944.—“Problems of treatment of tropical diseases in returning military personnel.” 44 (19), 2105-2108.

(247a) The most important tropical diseases occurring in American military personnel returning from the Pacific are malaria and filariasis. Several hundreds have been infected with the latter and have been invalided home for acute lymphangitis or lymphadenitis or involvement of the lymphatics of the scrotum. These symptoms, which appear as early as three months after infection and while the worms are still immature, are apparently allergic phenomena and no microfilariae yet occur in the blood.

R.T.L.

248—New Zealand Journal of Science and Technology. A. Agricultural Section.

- a. JACKS, H., 1944.—“Soil disinfection. I. Preliminary report on control of eelworm.” 26 (4), 186-189.

(248a) Using tomato plants as indicators, experiments on the control of *Heterodera marioni* by disinfectants were carried out in infected soil. The substances used were cresylic acid, naphthalene, formalin, calcium chlor-acetate, carbon disulphide, D.D. mixture and silver proteinate. Cresylic acid and D.D., while controlling the eelworm, caused root injury. Carbon disulphide gave poor control and is unlikely to be of practical value. Formalin delayed the action of the worms sufficiently to enable the plants to make good growth. Chloropicrin gave good control of the nematodes. No effective control resulted from the use of silver proteinate, calcium chlor-acetate or naphthalene.

R.T.L.

249—Northwest Medicine.

- a. RAMEY, W. O., 1944.—“Filariasis.” 43 (6), 164-166.
b. GEORGE, J. O., 1944.—“Treatment of parasites of the small intestine with Dover's powder.” 43 (6), 172.

(249b) George has found a 5 grain dose of Dover's powder to be effective against tape-worm (presumed to be *Diphyllobothrium*) in Eskimos. He also prescribed 5 grains of Dover's powder to be taken every 4 hours by a woman infected with *Ascaris lumbricoides*: after the 4th dose she “expelled one pint of worms”. Treatment was continued until no parasites or ova were found in the stools.

A.E.F.

250—Phytopathology.

- a. CLAYTON, E. E., SHAW, K. J., SMITH, T. E., GAINES, J. G. & GRAHAM, T. W., 1944.—“Tobacco disease control by crop rotation.” 34 (10), 870-883.
b. STARK, JR., F. L., LEAR, B. & NEWHALL, A. G., 1944.—“Comparison of soil fumigants for the control of the root-knot nematode.” 34 (11), 954-965.
c. CLAYTON, E. E., 1944.—“Tobacco disease control by rotation.” [Abstract of paper presented at the 1st Annual Meeting of the Potomac Division of the American Phytopathological Society, Bureau of Plant Industry Station, Beltsville, Maryland, February 23 and 24, 1944.] 34 (11), 990.
d. DIMOCK, A. W., 1944.—“Soil treatment with sodium selenate for control of foliar nematode of chrysanthemums.” [Abstract of paper accepted for presentation at the 36th Annual Meeting of the American Phytopathological Society, Cincinnati, Ohio, December 9 to 11, 1944.] 34 (12), 999.

(250a) The authors give the results of investigations into the effects of various crop rotations on root-knot disease in tobacco. Following 2 years cultivation of resistant cowpeas on infected land there was little root-knot on tobacco grown in the next 2 years, but during the next 7 years the disease was as severe as on plots where susceptible cowpeas had been grown. Following the growth of velvet beans or of native weeds (both resistant crops), tobacco was at first only lightly infected, but became more heavily attacked every year until, after 9 years, the disease was as bad as on control plots. Corn, another resistant crop, gave similar results. Bare fallow or peanuts were effective in reducing the nematode population. Winter fallow or winter vetch cultivation

followed in summer by tobacco, repeated for 7 successive years resulted, after 3 or 4 years, in a decline in root-knot, particularly after vetch. The latter was severely galled in the first few years, but was almost free from disease in the last two. Good disease control followed crops of *Crotalaria*, peanuts, velvet beans, oats plus bare fallow, and bare fallow, but the yields and quality of tobacco were not always correspondingly good. The results show that control of root-knot in tobacco must be considered on a long-term basis and the results of 3 or 4 year trials may be quite misleading. M.T.F.

(250b) This paper discusses the relative efficiency against *Heterodera marioni* of chloropicrin, chloropicrin with ethylene dichloride, chloropicrin with methyl bromide, D-D mixture, ethylene dichloride, and methyl bromide mixture containing ethylene dichloride and carbon tetrachloride. The methyl bromide mixture appeared very promising in respect of price, handling and early planting. R.T.L.

(250c) The results of experiments carried out since 1926 show that root-knot disease, caused by *Heterodera marioni*, may be effectively controlled by bare fallowing. Successive crops on infected land may range from severely to only slightly diseased. For effective control of root-knot by rotation, immune, not resistant, crops must be cultivated; over a period of years results with resistant crops were no better than with susceptible. M.T.F.

(250d) Solutions of sodium selenate in water were applied to 12 flats of composted soil in which healthy cuttings of chrysanthemum, variety Yellow Fellow, had been planted 11 days before. The chemical was applied at the rate of 25 parts per million and an inoculum of fragmented leaves infected with the foliar nematode was spread on the soil surface immediately afterwards, and also on 6 control flats. A week later half the treated flats received a second dose of 25 ppm of the same solution. On examination at the end of September the plants from the untreated infected flats were all heavily infected: one of those from the flats which received a single dose of chemical showed infection, while there were no signs of infection in plants from the flats which had received the double dose. The latter plants all showed considerable selenium injury and some stunting, while those from the flats receiving a single dose showed slight injury and little stunting. M.T.F.

251—Plant Disease Reporter.

- a. BLODGETT, E. C., 1944.—“Rootknot in Idaho.” 28 (37), 1130.

(251a) A small planting of carrots and turnips in Southern Idaho showed root-knot due to *Heterodera marioni*, the carrots being severely diseased. The infestation is new to this area. M.T.F.

252—Planters' Chronicle.

- a. RAU, S. A., 1944.—“A practical method of testing tea nursery soils for the root-knot eelworm.” 39 (24), 347.

(252a) Small tin containers filled with soil taken from nurseries suspected of infection with root-knot eelworm are planted with seeds of *Tephrosia vogelii*. The plants are lifted four weeks later and the roots should then show characteristic galls if the soil is infective. R.T.L.

253—Prensa Médica Argentina.

- *a. GOÑALONS, G. P., 1944.—“El tratamiento de ciertas verminosis intestinales.” 31, 91-97.
 b. GRANA, A., 1944.—“El tratamiento biológico de la hidatidosis. Su acción sobre algunas manifestaciones de alergia hidatídica.” 31 (16), 733-737.
 c. CEBALLOS, A. & BOTTINI, A. C., 1944.—“Hidátido-tuberculosis.” 31 (21), 957-961.
 d. OLMEDO, F. A. & LONGO, O. F., 1944.—“Hidatidosis primitiva de la glándula mamaria.” 31 (22), 1005-1007.

254—Press Bulletin. Florida Agricultural Experiment Station.

- a. EMMEL, M. W., 1944.—“The use of phenothiazine for livestock.” No. 599, 4 pp.

255—Proceedings of the American Society for Horticultural Science.

- a. McBETH, C. W. & TAYLOR, A. L., 1944.—“Immune and resistant cover crops valuable in root-knot-infested peach orchards.” 45, 158-166.

(255a) The results, as measured by increase in trunk diameter, per cent root-knot infection and yield, are given for a five-year experiment in which 4 different treatments were applied to a peach orchard heavily infected with root-knot nematodes. The treatments were (i) a root-knot susceptible cover crop consisting of cowpeas and winter peas ploughed under as green manure; (ii) root-knot immune and resistant cover crops, namely, *Crotalaria spectabilis* and oats in winter both ploughed in green; (iii) clean cultivation; (iv) several plantings of cowpeas used as trap crops. It was found that increased growth and yield were obtained when immune and resistant cover crops were grown: clean cultivation and trap crops also increase growth and yields but are impracticable.

M.T.F.

256—Proceedings of the Florida Academy of Science.

- *a. WATSON, J. R., 1944.—“Mulches to control root-knot.” 7 (2/3), 151-153.

(256a) Briefly reported tests indicate that great benefit is given to plants susceptible to root-knot if they are heavily mulched with any decayable vegetable material, and the good effect lasts for some time after the mulch has been removed. [From an abstract in Exp. Sta. Rec., 92, 795.]

M.T.F.

257—Proceedings of the International Assembly of the Inter-State Post-Graduate Medical Association of North America.

- a. REIMANN, H. A., 1944.—“Trichinosis.” Year 1943, pp. 132-134.

258—Proceedings of the Oklahoma Academy of Science.

- a. KUNTZ, R. E. & SELF, J. T., 1944.—“An ecological study of metazoan parasites of the Salientia of Comanche County, Oklahoma.” 24, 35-38.

(258a) Kuntz & Self have examined the parasitic fauna of the following amphibian species in Comanche County, Oklahoma: *Rana catesbeiana*, *R. sphenoccephala*, *Acris crepitans*, *Microhyla olivacea*, *Pseudacris clarkii*, *Bufo cognatus*, *B. compactilis*, *B. insidior*, *B. woodhousii woodhousii* and *Scaphiopus couchii*. Rather more than half harboured trematodes, less than a third of them harboured cestodes, while more than half had nematodes. The species found were *Diplorchis americana*, *Allasostoma parvum*, *Diplodiscus temperatus*, *Gorgodera amplicava*, *Haematoloechus medioplexus*, *H. uniplexus*, *Glythelminis quieta*, *Halipegus occidialis*, *Ophiotaenia magna*, *Nematotaenia dispar*, *Distoichometra bufonis*, *Rhabdias* sp., *Spironoura catesbeianae*, *Pharyngodon* sp., *Oxysomatium* sp., *Oswaldocruzia waltoni*, *O.* sp., *Foleyella* sp., *Camallanus* sp., and *Spinitectus gracilis*. There were numerous immature forms, diagnoses of which were not made.

P.A.C.

259—Proceedings and Papers of the Annual Conference of the California Mosquito Control Association.

- a. STEWART, M. A., 1944.—“Filariasis.” 13th (1944), pp. 6-8.

- b. HERMS, W. B., 1944.—“The mosquito vectors in the Pacific area.” 13th (1944), pp. 12-20.

(259a) Stewart is of opinion that a considerable part of the clinical findings in the cases of filariasis so far seen in U.S. Services patients from the Pacific area are consequent upon allergic reactions to the parasite or its products. There are recurrent attacks of decreasing severity with intervals of little or no complaint. The clinical manifestations are stimulated by exercise and abate with enforced rest in bed. It is fear and worry which causes the greatest suffering.

R.T.L.

(259b) Herms deals briefly with the more important insect vectors of filariasis in the Pacific area, viz., *Culex quinquefasciatus*, *C. pipiens pallens*, *Anopheles hyrcanus sinensis*, *Aedes scutellaris* and *Mansonia uniformis*.

R.T.L.

260—Puerto Rico Journal of Public Health and Tropical Medicine.

- a. HERNÁNDEZ MORALES, F., 1944.—“Note on the treatment of *Schistosomiasis mansoni* with gentian violet.” 19 (4), 666. [Also in Spanish, pp. 667–668.]

(260a) Hernández Morales has failed to confirm W. A. Hoffman's observation that the eggs of *Schistosoma mansoni* undergo degeneration when gentian violet was administered orally to 15 patients suffering from this infection. R.T.L.

261—Quarterly Bulletin. Michigan Agricultural Experiment Station.

- a. HAWKINS, P. A., COLE, C. L., KLINE, E. E. & DRUDGE, J. H., 1944.—“Studies of sheep parasites. II. Winter treatment of the breeding flock.” 27 (1), 67–81.
b. HAWKINS, P. A., COLE, C. L., KLINE, E. E. & DRUDGE, J. H., 1944.—“Studies of sheep parasites. III. Treatment of the lambs.” 27 (1), 82–95.

(261a) Hawkins et al. have examined the effects of winter treatments of breeding lambs on the acquisition of helminths. The lambs all carried fairly heavy helminth infestations. Treatment with phenothiazine in autumn was found to be useful: later treatment with the drug or with copper-nicotine sulphate was not justified by results. They found it was wise to treat ewes with phenothiazine again before they were returned to pasture in the spring and thorough cleaning of winter pens was useful in reducing the degree of infection in the ewes. P.A.C.

(261b) Hawkins et al. begin control measures against helminths in sheep early in autumn, using careful hygienic measures over the winter coupled with treatment by phenothiazine [see Helm. Abs., Vol. XIII, No. 70b]. This drug, used as a drench, kept the level of infection low, but did not eliminate it completely. Heavily infested lambs were markedly anaemic with low haemoglobin index and low red cell count. Repeated treatment usually affected the weight of the lambs. P.A.C.

262—Quarterly Journal of Medicine.

- a. DIXON, H. B. F. & HARGREAVES, W. H., 1944.—“Cysticercosis (*Taenia solium*). A further ten years' clinical study, covering 284 cases.” 13 (52), 107–121.

(262a) Dixon & Hargreaves have examined the clinical history of 284 cases of cysticercosis, most of which seemed to have acquired their infections in India. Diagnosis was made by biopsy, radiography, by surgical operation, or at post-mortem. Symptoms vary—fits may or may not occur. Changes in personality and behaviour are fairly frequent. The incubation period between infestation and occurrence of symptoms may be anything from a few months to 20 years. Intestinal tapeworm infestation was not always noticed but transient nodules under the skin have often been noted. Calcification of the cerebral cysticerci was noticed in 11% of the cases, generally in the scolex only but sometimes involving the cyst wall also. Prognosis is better than has been believed, one-third of the patients showing improvements and some of them remaining free from all symptoms for several years. P.A.C.

263—Quarterly Review of Biology.

- a. CORT, W. W., 1944.—“The germ cell cycle in the digenetic trematodes.” 19 (4), 275–284.

(263a) Steenstrup, who in 1842 first outlined the theory of alternation of generations of the digenetic trematodes, considered the reproduction in the sporocysts and rediae as an asexual process of internal budding. The view supported by the most recent observers and first put forward by Leuckart in 1886, is that the reproductive cells in the sporocysts and rediae can be traced back directly to the fertilized ovum. They never become true germ cells and the multiplication of the cells of the germinal line is a polyembryony of the original zygote or fertilized ovum during which numerous soma cells are split off to form the primary and secondary germinal sacs which contain the multiplying germinal cells and the embryos derived therefrom. R.T.L.

264—Queensland Agricultural Journal.

- a. NEWTON, L. G., 1944.—“Diseases of chickens and growing stock.” 59 (2), 107–108.

265—Report of the Chief of the Bureau of Animal Industry, United States Department of Agriculture.

- a. UNITED STATES BUREAU OF ANIMAL INDUSTRY, 1944.—“Livestock and poultry parasite investigations.” Year 1942-1943, pp. 29-37.
- b. UNITED STATES BUREAU OF ANIMAL INDUSTRY, 1944.—“Livestock and poultry parasite investigations.” Year 1943-1944, pp. 29-37.

(265a) As a cheap drench for use against nodular worms in sheep phenothiazine is used as a 4% suspension of flour in water or is shaken up in milk. In U.S.A. 51% of the sheep in the Middle West are infected. The incidence is lowest in the Pacific Coast states. It has been found that animals will consume voluntarily sufficient medicated salt containing 10% phenothiazine to provide effective control of stomach worms and trichostrongyles as well as nodular worms. It also suppressed hookworms to a considerable extent. This phenothiazine-salt mixture prevented newly hatched larvae from developing into infective larvae on pastures. The average consumption of phenothiazine per sheep was two-thirds of a pound and of salt about 6 lb. In horses phenothiazine removed practically all the redworms but occasionally 30 to 50 gramme doses resulted in severe anaemia which terminated fatally. The salt mixture recommended for sheep was not palatable to horses but mixtures of one part of phenothiazine to 29 and 39 parts of salt were readily consumed and reasonably effective. Liver flukes in cattle were effectively and safely removed by a suspension of hexachlorethane and bentonite in water; only 6 out of 217 animals treated failed to respond satisfactorily. Intestinal threadworms retarded growth in pigs and frequently proved a cause of unthriftiness or death. R.T.L.

(265b) Although phenothiazine is the most effective drug against *Strongylus* spp. in horses, a full dose of 30 to 50 grammes is sometimes poorly tolerated. Phenothiazine-salt mixtures containing 10% of phenothiazine proved unpalatable to horses. Preliminary full doses may be advisable. Mixtures containing 2% and 2½% tested on 5 and 10 animals for varying periods gave satisfactory results and had no harmful effects. In cattle with liver fluke remarkable improvement followed the administration of 100 c.c. of a hexachlorethane-bentonite suspension. Phenothiazine in standard therapeutic doses is a safe anthelmintic for calves. On a good diet calves received no permanent injury from phenothiazine at the rate of 0.4 to 0.9 grammes per pound of bodyweight. A dose 4½ times the therapeutic dose caused symptoms of intoxication for 24 to 48 hours. The alleged phenothiazine intoxication in calves is usually due to other factors. Gastro-intestinal parasites in sheep and goats are well controlled by continuous phenothiazine-salt (1 : 9) mixture administration. In goats *Haemonchus* proved the most difficult species to control. *Bunostomum trigonocephalum* larvae produced infection when placed on the skin of lambs but not after oral administration. Anaemia and retarded growth followed. For pigs, sodium fluoride merits further consideration as an anthelmintic. Administered in the food in doses of 1%, 1.5% and 2% on a single occasion and repeated one week later, this chemical removed 96% to 100% of the *Ascaris* worms. The only unfavourable effects were lessened appetite, occasional vomiting and soft faeces, but 4% gave definitely toxic symptoms and 5% was fatal in 1 out of 2 pigs so treated. Its use is not as yet warranted. For *Taenia* and *Dipylidium* in dogs perthiocyanic acid 0.1 to 0.2 grammes per pound bodyweight proved very efficient, and “Butylphen” (para-tertiary-butyl phenol) at 0.1 to 1 gramme per pound bodyweight removed 97% of hookworms and ascarids, and 74% of whipworms. Both of these drugs were well tolerated. R.T.L.

266—Report of the Council for Scientific and Industrial Research. Australia.

- a. AUSTRALIA. COUNCIL FOR SCIENTIFIC & INDUSTRIAL RESEARCH, 1944.—“Animal health and nutrition investigations.” 18th (1943-44), pp. 20-24.

(266a) Of 7 arsenites tested against *Haemonchus contortus* all were effective while of 11 arsenates only 5 were effective. The drugs were injected directly into the rumen or abomasum and sometimes were given by the mouth. Phenothiazine proved ineffective, in the usual doses, against immature trichostrongyles 10 to 15 days old. A dose of 15 grammes every 21 to 28 days given directly into the rumen of young sheep receiving 2,000 to 7,000 infective larvae was effective in keeping the worm burden low. Single doses of 5 grammes to 10 grammes gave variable

results. The injection of carbon bisulphide into the abomasum confirmed its anthelmintic efficiency. Enemas containing arsenic pentoxide were less efficient against *Oesophagostomum columbianum* than those containing sodium arsenite. The administration of phenothiazine in a salt lick had no effect on the worm burden until the daily dose consumed reached 0.5 grammes when the egg counts decreased. The regular administration of phenothiazine as a drench markedly reduced the worm burden and brought about a gain in body weight of 9.4 kg. as compared with 5 kg. in a "lick" group. A daily consumption of 0.5 grammes was not as valuable as 15 grammes once a month. No ration used as supplementary feeding for the control of worm parasites gave an economical return.

R.T.L.

267—Revista de la Asociación Argentina de Dietología.

- a. PIERANGELI, E. & RIVERO, E., 1944.—"Los vegetales de hoja como fuente de contaminación parasitaria." 2 (5), 16-21.

(267a) Pierangeli & Rivero have examined 6,433 samples of water in which leafy vegetables had been washed, to determine whether they were of importance in the transmission of intestinal parasites to man. Helminth ova or larvae were found as follows: *Taenia saginata* in 71 samples (1.4%); *Hymenolepis nana* in 28 (0.5%); *Fasciola hepatica* in 2; *Enterobius vermicularis* in 19 (0.4%); *Ascaris lumbricoides* in 7; *Trichuris trichiura* in 123 (2.4%); *Ancylostoma duodenale* in 4; *Strongyloides stercoralis* in 50 (1.0%). Descriptions of *E. vermicularis* and *S. stercoralis* are included.

A.E.F.

268—Revista de la Asociación de Ingenieros Agronomos.

- a. BERTELLI, J. C. & BERTELLI, L. K. DE, 1944.—"Podredumbre de las raicillas de los citros." 16 (3), 26-43. [English summary pp. 37-38.]

(268a) A disease of citrus in Uruguay known as "rootlet rot" has been investigated by J. C. Bertelli & L. K. de Bertelli. They have gone into the question of whether the citrus root nematode, *Tylenchulus semi-penetrans*, is the cause of this particular malady. Their conclusion is apparently, that since nematode-infected plants, though showing some symptoms of disease easily confused with "rootlet rot," readily recover when liberally manured, the nematode is not the true cause of the disease studied which is more probably of fungal origin.

T.G.

269—Revista de la Asociación Médica Argentina.

- a. RIVAS, C. I., 1944.—"Hidatidosis y tuberculosis pulmonar." 58 (534), 331-337.
 b. CISNEROS, A. D., PARISI, J. M. & CAHN, G. S., 1944.—"Tuberculosis y quiste hidático asociados en riñón derecho." 58 (538), 584-587.
 c. LATIENDA, R. I. & CARPANELLI, J. B., 1944.—"Apendicitis y oxyurus." 58 (539), 627-631.
 d. LOZANO, D., 1944.—"Hidatidosis cardíaca." 58 (545), 1024-1026.

270—Revista Brasileira de Biologia.

- a. NORONHA PÉRES, J., 1944.—"Sobre a presença de anticorpos heterogenéticos na esquistosomose de Manson." 4 (3), 401-404. [English summary p. 404.]

(270a) Noronha Péres has demonstrated the presence of heterogenetic agglutinins in the sera of patients suffering from Schistosomiasis mansoni. They are of the Forssman type and, being present in all the patients examined, he suggests that an investigation for them would be a valuable aid in the diagnosis of the disease.

P.A.C.

271—Revista Clínica Española.

- a. DOMÍNGUEZ RODIÑO, E., CUBERO ORELLANA, J. M. & CAMACHO BAÑOS, I., 1944.—"Distomatosis hepática." 13 (5), 353-355.
 b. ROF CARBALLO, J. & CLAVEL, F., 1944.—"Astenia muscular por triquinosis." 15 (1), 50-52.

(271a) A case of *Fasciola hepatica* infection in a 14-year-old boy is reported from Seville, Spain.

A.E.F.

272—Revista. Facultad Nacional de Agronomía. Colombia.

- a. ORJUELA NAVARRETE, J. E., 1944.—“Situación patológica de las plantaciones de caña de azúcar en las zonas del valle de Cúcuta, Villa del Rosario y regiones aledañas.” 5 (21), 200–231.

(272a) This paper on diseases of sugar cane in Colombia, S. America, includes a note by F. J. Otoyá on the nematodes found in the roots of sugar cane in the region of Cúcuta. The worms are referred to the genus *Tylenchus*, but owing to lack of the necessary literature a specific determination was not made and the nematodes are merely spoken of as *Tylenchus* sp. [It would seem, however, from the description of the symptoms of disease produced in the roots, i.e. absence of hypertrophied tissue and the production of reddish coloured lesions, that the nematodes are, most probably, *Anguillulina similis* (Cobb, 1893), well known as a parasite of sugar cane roots.] Symptoms of disease in affected roots are described and soil conditions conducive to attack are dealt with as well as suggestions for control. T.G.

273—Revista del Instituto de Salubridad y Enfermedades Tropicales. México.

- a. MAZZOTTI, L., 1944.—“Presencia de huevecillos de *Taenia* en la region perianal.” 5 (2), 153–155. [English summary p. 155.]
 b. MAZZOTTI, L., 1944.—“Examen de 400 diafragmas humanos en la ciudad de México para investigar triquinosis. Consideraciones sobre el examen de 1,000 diafragmas.” 5 (2), 157–161. [English summary p. 161.]
 c. MAZZOTTI, L., 1944.—“Observaciones en 10 individuos parasitados con *Taenia saginata*. Presencia de huevecillos en la región perianal y en otras regiones cutáneas.” 5 (3), 207–213. [English summary p. 212.]
 d. MAZZOTTI, L., 1944.—“Datos sobre la cisticercosis en México.” 5 (4), 283–292.

(273a) Graham's method for obtaining oxyuris eggs from the peri-anal region has been used for the diagnosis of *Taenia* infections. The patients were examined 63 times and on 44 occasions eggs were found on the peri-anal skin. R.T.L.

(273b) 1,000 diaphragms have been examined in Mexico City for *Trichinella spiralis*, 600 of which have already been reported upon in 1943 [see Helm. Abs., Vol. XII, No. 396b]. 4% of 527 which were tested by the compression of 2 grammes of muscle were positive, while of the remaining 473 which were examined by the compression of 10 grammes of muscle 12% were positive. Calcified cysts are frequently destroyed by the digestion method. R.T.L.

(273c) Mazzotti has examined carriers of *Taenia saginata*. Examination of faeces showed 73% positive for *Taenia* eggs, while of 108 examinations of the peri-anal regions, during several days, 92 (85%) gave positive results. Eggs were also recovered from the skin occasionally—from the lumbar and hypogastric regions and from the knee: they were also recovered from the clothing. P.A.C.

(273d) Mazzotti reviews the literature on the incidence of cysticerciasis and *Taenia* infections in Mexico. Of 128,025 pigs slaughtered in Mexico City between December, 1936, and March, 1939, 5,558 (or 4.34%) were infected with *C. cellulosae*. The incidence of *Taenia* in man, as determined by the presence of ova in the faeces, varied between 1.2% and 2.7%. In 89 cases where proglottids were recovered 85 were *T. saginata* and 4 *T. solium*. Cysticerciasis in man was found in 38 of 1,357 post-mortems at a Mexico City hospital in 1942, and in 13 out of 2,250 post-mortems at a Guadalajara hospital in 1944. A.E.F.

274—Revista Médica Brasileira.

- a. TALICE, R. V., 1944.—“Triquinosis. Los nuevos conceptos epidemiológicos y clínicos sobre esta antiga enfermedad.” 16 (6), 741–750.

(274a) Talicé summarizes recent literature on trichinelliasis in man, with special reference to diagnosis and the incidence of infection in Uruguay. A.E.F.

275—Revista Médica de Chile.

- a. MARTINI HERRERA, J., 1944.—“Hidatosis primitiva de las vías biliares?” 72, 85–87.
- b. CASTRO G., J., 1944.—“Hidatidosis osea.” 72 (12), 1074–1077.

276—Revista de Medicina Tropical y Parasitología, Bacteriología, Clínica y Laboratorio.

- a. KOURÍ, P. & BASNUEVO, J. G., 1944.—“Tratamiento de las helmintiasis humanas.” 10 (4), 74–99.
- b. KOURÍ, P., 1944.—“Tercer informe en relacion al *Inermicapsifer cubensis* (Kouri 1938) Kouri 1939.” 10 (5/6), 107–112.
- c. VÁSQUEZ PAUSA, A., SELLEK AZZI, A., INCLÁN SANDOVAL, A. & GARCÍA VÁSQUEZ, M., 1944.—“*Fasciola hepatica*. Reporte del primer caso observado en Cuba en un niño.” 10 (5/6), 131–133.

(276b) *Inermicapsifer cubensis* (synonyms: *Raillietina kouridovalei* and *R. loechesalavezi*) has been recovered from several provinces of Cuba and is generally a parasite of very young children. It probably also occurs in Venezuela. Usually only a single example occurs. It is doubtful if man is the true definitive host. Kourí describes the gravid segment. P.A.C.

277—Revista de Medicina Veterinaria. Buenos Aires.

- a. FINGER, N. A., 1944.—“Algo más sobre el bromhidrato de arecolina como antiparasitario del perro.” 26 (1/2), 6–34.

(277a) Finger has investigated the use of arecolin hydrobromide as an anthelmintic against *Echinococcus granulosus*. It was not completely successful against this cestode, particularly in the case of older hosts. There are distinct contra-indications, for haemorrhage from the mucosa of the gut seems to follow its use. It was more effective against *T. serrata*, *T. marginata* and *Dipylidium caninum*, but completely useless against hookworm and whipworm. With cases of *Ascaris*, serious intestinal contractions resulted and it was often accompanied by vomiting. P.A.C.

278—Revista de la Policlínica Caracas.

- a. POTENZA, L. & VOGELSANG, E., 1944.—“Cisticercosis cerebral.” 13 (77), 255–261.
- b. SANABRIA, A., 1944.—“Síndrome de Stokes-Adams por miocarditis bilharziana.” 13 (77), 282–293.

279—Revue Agricole de l'Afrique du Nord.

- *a. MORELL, G., 1944.—“Le kyste hydatique ou échinococcique.” 42, 71, 73.

280—Revue Suisse de Zoologie.

- a. KREIS, H. A., 1944.—“Beiträge zur Kenntnis parasitischer Nematoden. XI. Neue parasitische Nematoden.” 51 (2), 227–252.

(280a) Kreis describes and figures the following parasitic nematodes obtained at the post-mortem examination of animals which had died at the Zoological Gardens at Bern and Basel, Switzerland: *Oxyuris aegocerotos* n.sp. from the ibex, *Capra ibex* L.; *Enterobius sciuri* n.sp. from the squirrel, *Sciurus vulgaris* L.; *Hexametra daehloelzlii* n.sp. from the Levant viper, *Vipera lebetina* L.; and *Neometastrongylus büchii* n.g., n.sp. from the goat, *Capra hircus* L. T.G.

281—Rhodesia Agricultural Journal.

- a. LAWRENCE, D. A., 1944.—“Carbon tetrachloride for the treatment of liver fluke and hookworm.” 41 (6), 383–384.

(281a) Lawrence states that carbon tetrachloride is the only effective remedy available for the control of hookworm and liver fluke in cattle. Considerable care in dosing and in excluding factors enhancing its toxicity is necessary. Animals which are very fat or very thin, suckling, receiving rich protein supplementary food, not receiving bone meal, or have become heated through exercise, should not be dosed. Before treating a herd trial dosing on a few head should be a routine. An average dose of 5 to 8 c.c. is recommended for mature cattle and need

only be repeated at intervals of 6 to 8 weeks. For well-developed Merino sheep a maximum of 4 c.c. and for average sheep over one year old, $1\frac{1}{2}$ to 3 c.c., for lambs from 6 months to one year, $\frac{1}{2}$ to 1 c.c. is advised. In severe hookworm infection the interval between dosing should be 4 weeks. R.T.L.

282—Sheep and Goat Raiser.

- *a. MILLER, R. F., 1944.—“Advantages of the phenothiazine-salt mixture for sheep.” 24 (5), 37.

283—Sinensia. Contributions from the Metropolitan Museum of Natural History, Nanking.

- a. WU, H. M. & KUNG, C. C., 1944.—“Some suckered Nematoda of fowl in Chungking.” 15 (1/6), 119–123.

(283a) Wu & Kung examined 12 fowls from the Chungking market. They recovered 4 species of nematodes: *Heterakis galli*, *H. putaustralis*, *H. beramporia*, and *Ascaridia sinensis* n.sp. The latter was found in the small intestine, and is fully described and illustrated. *A. sinensis* resembles *A. gallinae*, but has papillae on the ventral surface of the male tail, while in the female the position of vulva is variable. A.E.F.

284—South African Medical Journal.

- a. MÖNNIG, H. O., 1944.—“Trichinosis in South Africa.” 18 (24), 420.

(284a) Mönnig has examined, by the digestion method, the diaphragms of 1,352 pigs slaughtered at the Johannesburg municipal abattoir. The pigs were drawn from a large area, and were representative of the major portion of the Union of South Africa. All examinations were completely negative for *Trichinella*. This confirms the generally accepted view that *Trichinella* either does not exist in South Africa, or is extremely rare. A.E.F.

285—Southern Medical Journal.

- a. BRODERS, JR., A. C. & PORTER, W. B., 1944.—“The incidence of *Trichina* infestation in eastern Virginia.” 37 (10), 558–559.
b. HABEEB, W. J., 1944.—“Human intestinal parasites in a West Virginia tuberculosis institution.” 37 (12), 701–703.

(285a) Broders & Porter report *Trichinella spiralis* in the diaphragm muscle of 6 out of 100 cases brought to autopsy in Richmond, Virginia. Of this series 54 were coloured individuals and 46 white; 65 were male and 35 were female. Half the positives were coloured and the sex incidence was similarly halved. As with the findings of other southern investigators this 6% incidence is much lower than the average incidence for the whole of the U.S.A.—16.2%. It is considered to be due to prolonged cooking, and to a smaller proportion of Germans and Italians, given to eating uncooked pork, in the South. The technique used was digestion in 0.5% pepsin and 0.7% hydrochloric acid incubated at 37°C. for about 24 hours with frequent stirrings followed by sedimentation, filtering through cheese cloth and centrifuging the filtrate. The sedimented material was then examined microscopically for larvae or cysts. M.R.Y.

(285b) Sixty-four out of 1,452 patients admitted to Pinecrest Sanitarium for pulmonary tuberculosis harboured parasites. *Strongyloides stercoralis* occurred in 38, *Necator americanus* in 17, *Ascaris lumbricoides* in 12, *Trichuris trichiura* in 9, and *Hymenolepis nana* in 2. Only a few showed even mild symptoms attributable to parasitic infestation. Eosinophilia ranged from 4% to 21%, the latter occurring in a case of *Strongyloides* infection. R.T.L.

286—Technical Bulletin. Oregon Agricultural Experiment Station.

- a. SHAW, J. N., 1944.—“Hexachloroethane treatment of liver fluke in Oregon cattle.” No. 7, 11 pp.

(286a) Though common in Oregon cattle, *Fasciola hepatica* rarely causes disease, and economic loss is mainly due to liver condemnation. Shaw used Olsen's hexachlorethane-bentonite mixture [see Helm. Abs., Vol. XII, No. 78b] in 2 of 4 steers with only partial success. B.G.P.

287—Technical Bulletin. United States Department of Agriculture.

- a. SARLES, M. P., 1944.—“Effects of experimental nodular worm (*Oesophagostomum columbianum*) infection in sheep.” No. 875, 19 pp.

(287a) Experimental infections indicate that the debilitating effect of *Oesophagostomum columbianum* in sheep is mainly due to disturbance of the normal functions of the intestine resulting from the formation of nodules in the gut wall.

R.T.L.

288—Transactions of the American Microscopical Society.

- a. PREBLE, N. A. & HARWOOD, P. D., 1944.—“A heavy infection of strigeids in a kingfisher (*Megascyle alcyon alcyon*).” 63 (4), 340–341.
 b. HONIGBERG, B., 1944.—“A morphological abnormality in the cestode, *Dipylidium caninum*.” 63 (4), 342–344.
 c. CUCKLER, A. C. & ALICATA, J. E., 1944.—“The life history of *Subulura brumpti*, a cecal nematode of poultry in Hawaii.” 63 (4), 345–357.

(288a) Preble & Harwood discuss the pathogenic effect which strigeid trematodes may have on birds, and ascribe the death of a kingfisher infested with 664 *Uvulifer ambloplites* and *Crassiphiala bulboglossa* to the effects of these parasites.

N.G.S.

(288b) Honigberg describes a specimen of *Dipylidium caninum* in which the genitalia were duplicated on one side of a single segment. Testes were not observed but all the ovaries were functional.

P.A.C.

(288c) Cuckler & Alicata suggest that morphologically and biologically the genus *Subulura* shows more resemblance to the Spiruridae than to the Oxyuroidea or Ascaroidea. Moulting does not occur within the egg shell before hatching occurs. The hatched larva has a boring apparatus for penetrating the tissues of the vector. The authors have involved 5 beetles, 2 grasshoppers and 1 earwig as vectors of *S. brumpti* experimentally. The third stage larva encysts in the body cavity of the insect. However, the shape of the oesophagus, the absence of lips and the presence of a pre-anal sucker in the male are not typical spirurid characters.

P.A.C.

289—Transactions of the Royal Society of South Australia.

- a. JOHNSTON, T. H. & MAWSON, P. M., 1944.—“Remarks on some parasitic nematodes from Australia and New Zealand.” 68 (1), 60–66.
 b. SANDARS, D. F., 1944.—“A contribution to the knowledge of the Microcotylidae of Western Australia.” 68 (1), 67–81.
 c. JOHNSTON, T. H. & SIMPSON, E. R., 1944.—“Life history of the trematode, *Echinochasmus pelecani* n.sp.” 68 (1), 113–119.
 d. JOHNSTON, T. H. & SIMPSON, E. R., 1944.—“Larval trematodes from Australian freshwater molluscs. Part IX.” 68 (1), 125–132.

(289a) These notes and systematic descriptions of helminths of 8 birds, 1 reptile, 1 amphibian, and 10 fishes from Australia and New Zealand include 5 new species, viz., *Capillaria strigis* n.sp. from *Ninox novaeseelandiae*; *C. lepidopodis* n.sp. from *Lepidopus caudatus*; *Alaeuris brachylophi* n.sp. from *Brachylophus fasciatus*; *Cucullanellus sheardi* n.sp. and *Ascarophis australis* n.sp. both from *Threpterus maculosus*. *Spironoura simpsoni* is nom. nov. for *S. hylae* Johnston & Simpson, 1943 preocc. *Filaria clelandi* is a *Diplotriaeana*. *Eustrongylides gadopsis*, with *E. galaxias* probably a synonym, occurs as larval forms in Southern Australian freshwater and estuarine fish.

R.T.L.

(289b) Sandars describes 4 new species of *Microcotyle* from gills of W. Australian fishes: *M. gerres* n.sp. on *Gerres ovatus*; *M. pentapodi* n.sp. on *Pentapodus milii*; *M. scorpiis* n.sp. on *Scorpiis aequipinnis*; *M. helotes* n.sp. on *Helotes sexlineatus*. *Gonoplasius carangis* n.g., n.sp. on *Caranx georgianus* is distinguished from the genus *Microcotyle* mainly by the presence of glandular organs on the anterior region of the body, and *Diplasiocotyle johnstoni* n.g., n.sp. on *Agonostomus forsteri* differs from *Microcotyle* in having only 7 pairs of relatively large clamps and a minute terminal pair. Eggs of this species were induced to hatch in 19 days, giving a ciliated larva constricted into 3 regions and bearing a haptor with 2 pairs of anchors and 3 pairs of small hooks. The youngest worm on the gills had only 4 pairs of clamps, but had already lost the larval haptor.

N.G.S.

(289c) The small echinochasmid described by Johnston & Simpson in the intestine of *Pelecanus conspicillatus* agrees with *Echinochasmus mordax* described by Looss, from an Egyptian pelican, except in the arrangement of the 22 collar spines, and is provisionally recorded as *E. pelecani* n.sp. Attempted rearing of the eggs in local snails failed, but the melanid *Plotiopsis tatei* was found infected with a cercaria which when fed to the freshwater fish *Oryzias latipes* and *Gambusia affinis* produced cysts on the gills containing a metacercaria having the characters of the adult *E. pelecani*. The feeding of cysts to a pigeon and a rat was unsuccessful. The larval forms are described and measurements given for young forms from the pelican. N.G.S.

(289d) Johnston & Simpson describe *Cercaria ellisi* n.sp., an echinostome with 45 collar spines from a redia in *Limnaea lessona*; metacercariae encysted in this and other molluscs and in the tadpole of *Crinia signifera* (especially in the kidney). They expect the adult will be found in waterfowl. *C. gigantura* var. *grandior* nov., emerging from *Amerianna pyramidata*, is described as differing from the type chiefly in the tail characters and its slightly larger cysts which formed, experimentally, in the viscera of *Gambusia affinis* and *Phalloceros caudimaculatus*. *C. angelae* n.sp., found emerging from *A. pyramidata* and *A. tenuistriata*, is a pharyngeal longifurcate strigeid with 4 pairs of post-acetabular gland cells and a transverse excretory canal; extensive feeding experiments with this form yielded a metacercaria in the tadpole of *Limnodynastes tasmaniensis*, and it is compared with possible relatives in birds of prey and herons. The cercariae were all found in the Tailem Bend region, S. Australia. N.G.S.

290—Transactions of the Royal Society of Tropical Medicine and Hygiene.

a. KNOTT, J. I., 1944.—“‘Filarial’ abscesses.” [Correspondence.] 38 (3), 235.

(290a) Twenty-two patients, in the Cook Islands of the Pacific, dramatically responded to abscess aspiration. Knott saw no connection with filariasis except the finding of microfilariae or clinical signs of filariasis in 60% of the cases. R.T.L.

291—Tropical Diseases Bulletin.

a. WILCOCKS, C., 1944.—“Medical organization and diseases of the Netherlands East Indies before the Japanese invasion.” 41 (12), 983–996.

(291a) The most widespread helminth disease in the Netherlands East Indies is the hookworm, 91.8% of which belong to the species *Necator americanus*. In rural districts 80% to 90% of the native population may be affected but serious illness is not common. Other helminths are *Taenia saginata*, especially in Bali, and *T. solium*. Trichinosis is also found. *Echinostomum ilocanum* occurs in Java and Celebes: around Lake Lindoe up to 96% of the population in some villages have this infection, which is acquired by eating freshwater snails or mussels. *Ascaris lumbricoides* and *Trichuris trichiura*, especially in children, *Wuchereria bancrofti* and *Filaria malayi* are also common. R.T.L.

292—United States Naval Medical Bulletin.

- a. MICHAEL, P., 1944.—“Filariasis among navy and marine personnel. Report on laboratory investigations.” 42 (5), 1059–1074.
- b. FLYNN, P. D., 1944.—“Filariasis suspects. Review of cases admitted.” 42 (5), 1075–1079.
- c. ALLEN, H. C., 1944.—“Eosinophilia in the South Pacific.” 42 (6), 1241–1244.
- d. JOHNSON, P. A. G., 1944.—“Filariasis. Clinical findings in 189 cases.” 43 (5), 950–954.
- e. VENNER, R. B., 1944.—“Filarial problem on Nanumea.” 43 (5), 955–963.

(292a) Michael describes his observations on a number of patients who had contracted filariasis in the Samoan islands: *Wuchereria bancrofti* was the species involved. No microfilariae were found in the blood of the Service patients, hence he concludes that the disease is unlikely to become a problem in the United States after the close of hostilities. Infection first became apparent 7 to 9 months after exposure and the symptoms are described: skin tests with *Dirofilaria immitis* antigen gave positive immediate and delayed reactions. Biopsies were performed: about 25% showed living or dead worms, some being in the peripheral lymphatics

and some in lymph glands. Living filariae sometimes migrated from cut glands without further exploration being necessary. Removal of infested glands in the arm is recommended, but it is unwise to investigate the spermatic cord. Examination of gland material by serial section is recommended. P.A.C.

(292b) Of 125 patients with undetermined diagnosis, ? filariasis, among U.S. Service personnel in a Marine Raider Battalion formed in American Samoa, 6.4% were positive for microfilariae to blood or lymph gland aspiration. In 59 cases excised glands showed chronic lymphadenitis and 24 of these were recorded as "possible filariasis". R.T.L.

(292c) Allen has studied the occurrence of eosinophilia in 987 Service personnel serving in the Pacific Islands. It is particularly marked in the Army Infantry troops and the Marine Raider Battalions in the Solomon Islands area and is probably largely due to hookworm, often before ova have appeared in the faeces. R.T.L.

(292d) Johnson has made a statistical study of 189 cases of filariasis among U.S. marines who contracted this infection in the Pacific. The incubation period lasted from 9.73 to 9.87 months. The two most consistent symptoms were swelling and tenderness. Exercise and warm weather increased the discomfort of the patient and improvement was in direct ratio to the length of leave in U.S.A. He stresses the importance of a proper psychological approach in reducing hospitalization. R.T.L.

(292e) Venner reports the results of an intensive survey and comparison of two of the Ellice Islands, Nanumea and Lakena "on the present and potential importance of filariasis from a military standpoint". Three species of mosquitoes were found on both islands, viz., *Aedes aegypti*, *A. scutellaris* var. *pseudoscutellaris* and *Culex annulirostris*, but *Culex* seldom occurred on Nanumea where the chief breeding places for mosquitoes were the cisterns and barrels used to collect and store rain whereas on Lakena the chief breeding places were the taro pits. Approximately 50% of the adult natives showed clinical signs of filariasis or positive evidence in blood smears or both but no information was collected regarding the degree of infection of the mosquitoes. R.T.L.

293—Uspekhi Sovremennoi Biologii.

- a. MARKEVICH, A. P., 1944.—[The origin and evolution of the parasitic fauna of domestic animals and man.] 18 (2), 247–262. [In Russian.]

(293a) In this general article the author discusses the origin of the parasitic fauna of domestic animals and man from the parasites of wild animals and ancestors. He stresses the importance of exchange of parasites between animals and man and the influence of ecological conditions on the geographical distribution of parasites. C.R.

294—Växtskyddsnotiser.

- a. HOLMBERG, C., 1944.—"Potatisälens nuvarande urbredning i Sverige." 1944, No. 1, 7–11.

(294a) Holmberg describes the spread of potato eelworm in Sweden since 1922 and its present distribution. M.T.F.

295—Veterinary Medicine.

- a. HAWKINS, P. A., 1944.—"Phenothiazine and sheep parasites." [Notes from an address given at the 62nd Annual Meeting of the Michigan Veterinary Medical Association, East Lansing, June 27–28, 1944.] 39 (10), 373.
b. EVELETH, D. F. & FOSS, J. O., 1944.—"Shikles syringe with the Whitlock nozzle for administering anthelmintics to sheep." 39 (10), 388.
c. RADELEFF, R. D., 1944.—"Lead arsenate an effective taeniicide for domestic ruminants." 39 (12), 453–454.

(295a) An effective preventive of stomach and nodular worms in sheep is a phenothiazine and salt mixture 1 : 14. It is purely prophylactic as it has no effect on the parasites but inhibits the development of the voided eggs. Heavily infected animals should be drenched or given

capsules of phenothiazine before receiving the mixture. Obviously also, the mixture will have no effect if the animals are put on pastures which are already heavily infected. R.T.L.

(295b) A Whitlock dosing nozzle fitted to a standard Shikles syringe can be used successfully to introduce any dose of anthelmintic far down the oesophagus. Tetrachlorethylene-mineral oil 1 : 1 is readily handled in doses of 10 c.c. per sheep. The mixture tends to affect the bag and tubing if left long in contact with the rubber. This occurs too with some suspensions of phenothiazine, while copper sulphate causes corrosion of the metal parts of the apparatus. R.T.L.

(295c) Radeleff recommends the use of lead arsenate, followed by castor oil, as a useful vermicide for *Moniezia* spp. in domestic ruminants. P.A.C.

296—Veterinary Record.

- a. MORGAN, D. O. & SLOAN, J. E. N., 1944.—“Some observations on helminths in Scottish hill sheep.” 56 (46), 436-437.
- b. CRAWSHAW, H. A., 1944.—“Nicotine and copper sulphate for lambs.” [Correspondence.] 56 (51), 507.

(296a) Data obtained by Morgan & Sloan from egg-counts made on over 700 hill sheep in the Scottish Borders show that, even with the low stocking of one sheep to about 5 acres, heavy infestations with intestinal helminths may be found. This was most marked in lambs and hogs where nearly 25% of the animals examined gave over 1,000 eggs per gramme. The incidence of *Moniezia* was found to be high in lambs but negligible in the other age groups. The authors discuss the significance of egg-counts in relation to hill sheep. D.O.M.

(296b) In reply to the criticisms by Rees-Mogg [see Helm. Abs., Vol. XIII, No. 161b] it is pointed out that 4 oz. stock solution of nicotine sulphate contains only 768 grains not 1,920 grains of nicotine sulphate. The 2 oz. dose for lambs will contain 8 grains of copper sulphate and 3.2 grains of nicotine sulphate, while the 3½ oz. worm dose will contain 14 grains of copper sulphate and 5.6 grains of nicotine sulphate. The dosage recommended by Mönnig which is equivalent to 4.8 grains of nicotine sulphate for ewes and 2.4 grains for lambs would be represented by 3 oz. and 1½ oz. of Rees-Mogg's prescription. R.T.L.

297—Veterinary Student. Iowa State College.

- a. BEARDMORE, H. F., 1944.—“Sheep diseases. Health problems encountered in middle west.” 6 (4), 189-191.

(297a) The most important sheep helminths in Iowa are *Haemonchus contortus* and *Oesophagostomum columbianum*. Liver-fluke causes heavy loss in certain areas, and *Thysanosoma* is still a problem. Beardmore does not consider that phenothiazine is of much value, under Iowa conditions, against nodular worm: hygiene and rotational grazing are more important and less expensive. A.E.F.

298—War Circular. Montana Agricultural Experiment Station.

- a. ANON, 1944.—“Keeping range lambs free from intestinal worm.” No. 5, 4 pp.

299—Yale Journal of Biology and Medicine.

- *a. HUNTINGTON, JR., R. W., FOGEL, R. H., EICHOLD, S. & DICKSON, J. G., 1944.—“Filariasis among American troops in South Pacific island group.” 16, 529-537.

300—Zeitschrift für Fleisch- und Milchhygiene.

- a. BUGGE, G., 1944.—“Über Echinokokken in den Schaflungen und den zugehörigen Lymphknoten.” 54 (15), 145-149.

301—Zentralblatt für Bakteriologie. Abteilung 1. Originale.

- a. SCHÜFFNER, W. & SWELLENGREBEL, N. H., 1944.—“Der Nachweis von Oxyuren-Eiern am After, im Nagelschmutz und im Zimmerstaub. II. Mitteilung.” 151 (2), 114-122.

(301a) Schüffner & Swellengrebel show that pre-treatment of the anal region by using their new technique for diagnosing enterobiasis [see Helm. Abs., Vol. XII, No. 436b] improves the results obtained by the swab method. Examination of school children [presumably in Amsterdam] revealed that 99% of 146 children aged 5 to 6, and 81% of 123 children aged 2 to 4 were infected: each child was examined four times. In only 35% of the children were ova found under the finger nails, even after three examinations. Enterobius ova were found in considerable numbers in the dust in most of the rooms at a school, including the dining room. An improved technique for the flotation of Enterobius ova, using zinc chloride, is described.

A.E.F.

NON-PERIODICAL LITERATURE.

302—*BANDONI, A. J. & CAMPONOVO, L. E., 1944.—“Terapeutica antiparasitaria. Parasitosis intestinales. Pediculosis. Escabiosis.” Buenos Aires, 296 pp.

303—*CANÇADO, J. R., 1944.—“Ação anti-helmíntica do látex do *Ficus glabrata* H.B.K.” Thesis, Belo Horizonte, 186 pp.

304—CHANDLER, A. C., 1944.—“Introduction to parasitology, with special reference to the parasites of man.” New York & London, 7th edit., x+716 pp.

305—*FACKINER, H., 1944.—“Phenothiazine. Ein Wurmmittel.” Dissertation, Hannover.

306—GRAM, E. & BOVIEN, P., 1944.—“Rodfrugternes Sygdomme og Skadedyr.” København, Kgl. Danske Landhusholdningsselskab, 2nd edit., 125 pp.

In this book, dealing with the diseases and pests of root crops, Gram & Bovien give brief descriptions of eelworm diseases on the following:—*Heterodera schachtii* on beet, sugar-beet, mangold, swedes and turnips; and *Tylenchus dipsaci* attack on mangold. There are good photographs and colour photographs by way of illustration.

T.G.

307—IMPERIAL AGRICULTURAL BUREAUX, 1944.—“Alternate husbandry.” Imperial Agricultural Bureaux, Joint Publication No. 6, 157 pp.

Chapter 8 of this monograph deals usefully with the relation of alternate husbandry to helminth infections, particularly of parasitic gastritis and enteritis and parasitic bronchitis of sheep and cattle, of “red-worm” disease of horses, and the importance of the acquisition of resistance by the grazing hosts. The effect of ley farming on the incidence of certain parasites which require intermediate hosts is in the direction of their control.

R.T.L.

308—*JUNIUS, L., 1944.—“Ei- und Larvenformen der Magen- und Darm-Nematoden beim Schaf.” Dissertation, Hannover.

309—LAURENT, P. Y., 1944.—“Le cristal violet dans le traitement de l'oxyurose.” Thèse, Paris, 58 pp.

Laurent reports that Deschiens has found that crystal violet cures mouse oxyuriasis (*Syphacia obvelata*). It does not inhibit the development of the eggs of this parasite *in vitro*, though 2 or 3 hours after the larvae emerge they die. Rabbits given 6 cg. per kilo each day for 6 days show no intolerance. The author states that he has treated 43 patients and practically all were cured. In gelatin capsules crystal violet was administered 4 times per day after meals, the daily dose being 24 cg. in 8 capsules of 3 cg. each, for 8 days (with children the dose is 1 cg. per year of apparent age). This treatment is repeated a week later, and in chronic cases is given 4 times in all: in intermittent cases it is given once a month until cured.

M.R.Y.

310—MOZLEY, A., 1944.—“The control of bilharzia in Southern Rhodesia.” Salisbury, Southern Rhodesia, 367 pp.

The greater part of Mozley's book (pp. 32–220) consists of a list of Southern Rhodesian habitats of aquatic snails, arranged by drainage basins and giving dates of sampling with number and genus of snails found. This is preceded by some full analyses of water, mud, and snails, indicating that *Biomphalaria pfeifferi* and *Physopsis globosa* (local carriers of *Schistosoma mansoni* and *S. haematobium* respectively) tend to favour habitats polluted with rubbish, and is followed by extensive laboratory notes on the chemical control of these molluscs.

B.G.P.

- 311— OLSEN, O. W., 1944.—“Liver flukes in cattle and how to control them by medication.” U.S. Department of Agriculture, Bureau of Animal Industry, 5 pp.

Giving a brief account of *Fasciola hepatica* and its life cycle, Olsen estimates the annual loss to the U.S.A. cattle industry due to fluke, from condemned livers and loss of carcass weight from unthriftiness, at 1,220 (short) tons. He recommends dosing with a hexachlorethane/bentonite suspension in water, in autumn and/or spring depending on the system of cattle management.

B.G.P.

- 312—*PINTO, C., 1944.—“Doenças infecciosas e parasitárias dos animais domésticos, inclusive sua transmissão ao homem.” Rio de Janeiro, 760 pp.
- 313—*PÖTSCHKE-SCHNEIDER, E., 1944.—“Ist die Abtötung der Trichinen in gepökeltem oder gekochtem Fleisch mikroskopisch festzustellen?” Dissertation, Hannover.
- 314—SCOTT, J. A. & BERCOVITZ, Z. T., 1944.—“Infections with helminths.” In: “Clinical tropical medicine.” By 27 authors, edited by Z. T. Bercovitz. New York & London, pp. 749–851.
- 315—*TÁLICE, R. V., 1944.—“Enfermedades parasitarias del hombre y parasitos de interes medico.” Buenos Aires, Vol. I, 778 pp.
- 316—*TAMM, O., 1944.—“Zur Frage der Toxizität des Phenothiazins.” Dissertation, Hannover.
- 317—*TÉLLEZ, O., 1944.—“Prontuario de parasitología agrícola animal y vegetal.” México, 2nd edit., 128 pp.

318—EXPLORATION DU PARC NATIONAL ALBERT. MISSION H. DAMAS (1935–36).

- a. SCHUURMANS STEKHOVEN, JR., J. H., 1944.—“Nématodes libres d'eau douce.” Fasc. 9, 31 pp.
- b. SCHUURMANS STEKHOVEN, JR., J. H., 1944.—“Nématodes parasites.” Fasc. 10, 13 pp.

(318a) Schuurmans Stekhoven reports on the free-living fresh water nematodes collected, for the most part, in the region of Lake Edward by H. Damas. The 26 samples contained a total of 305 nematodes which were found to belong to only 12 species, with a preponderance of members of the Dorylaimidae. The following new species are described and figured: *Dorylaimus parhomalopapillatus* n.sp. and *Tylenchorhynchus spinicaudatus* n.sp. T.G.

(318b) Schuurmans Stekhoven deals with the nematode parasites collected by H. Damas from silurid fishes of Lake Edward and from a cormorant. From the latter the nematodes proved to be *Contracaecum punctatum* (Gedoele) whilst from the fishes they consisted of a large number of larvae of *Contracaecum rodhaini* (Gedoele) and some specimens of *Philometra congolense* Schuurmans Stekhoven. T.G.

